Dental Digest

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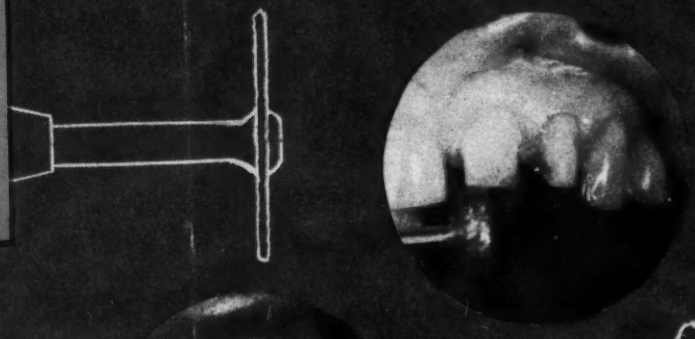

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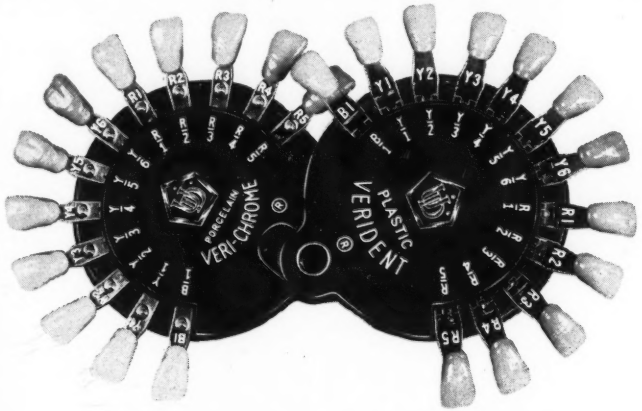

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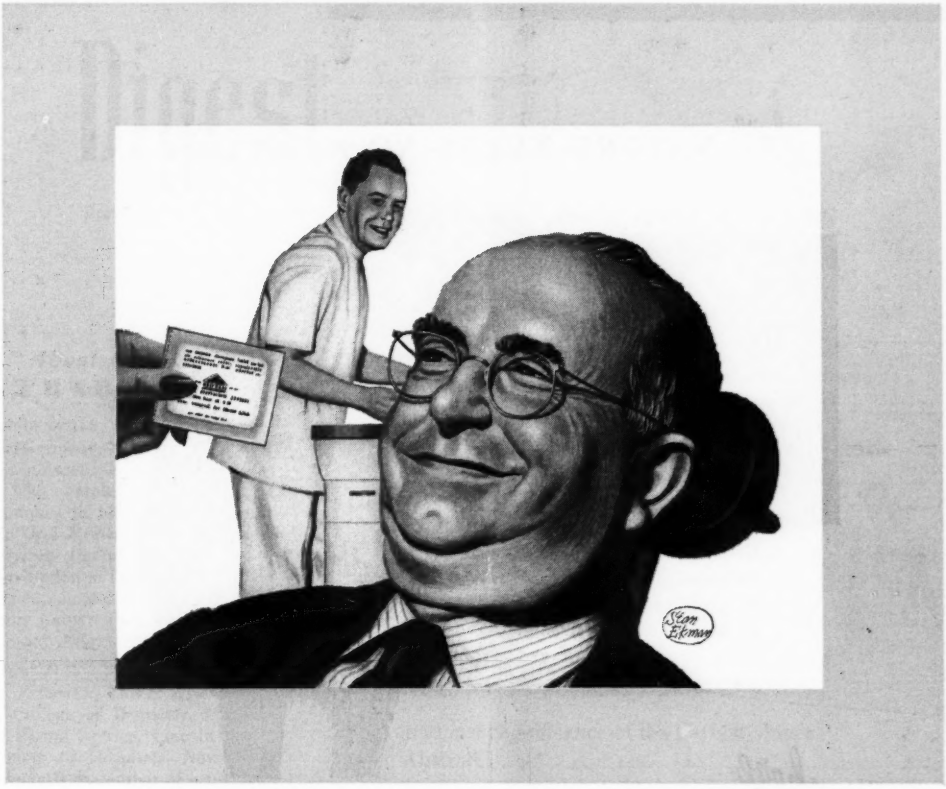

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Dental Digest

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OCTOBER 1956

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The magazine is mailed on the fifteenth of the month of issue.

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JACKET CROWN PREPARATIONS

with Guided Diamond Instruments

and Guided Impression Technique

SIEGFRIED GRUENWALD, D.D.S., Memphis, Tennessee

DIGEST

This article illustrates twenty-one steps in a successful procedure for constructing jacket crown preparations with the use of guided diamond instruments and a guided impression technique which eliminates the possibility of the occurrence of traumatizing gingival recession after the completion of excellent restorations.

Fig. 1—Upper left central and lateral incisor angles are restored with plastic restoration material. Unsightly caries has started to discolor the underlying tooth structure.

Fig. 2—An alginate impression is taken as reference for the technician to restore the form of the tooth to its natural anatomy.

Fig. 3—The pencil marks on the central and lateral indicate the mesial and distal slices.

Fig. 4—Mesial and distal slices are made simultaneously on both teeth. If there are to be 2 centrals or 6 anteriors to be cut, the same would apply to those teeth.

Fig. 5—Mesial and distal cuts are finished as shown in this picture. The shoulders are made about 1.5 millimeter from the proximal. Incisal angle with the disc is slightly inclined toward the axial midline.

Fig. 6—With the guided shoulder stone, which is safe side toward the gingival, the mesial and distal slices are connected labially and lingually by following the outline of the gingival margin as closely as possible. This procedure will determine the depth of the shoulder.

Fig. 7—With the labial and lingual reduction stone, which corresponds to the depth of the guided shoulder stone, the labial and lingual surfaces are reduced by moving the stone from mesial to distal parallel to the long axis of the tooth. The guide pin follows the outline of the gingiva, thus assuring a uniform reduction of the tooth structure.

Fig. 8—A diamond stone is used to reduce the incisal edge of the tooth.

Fig. 9—The removal of sharp line angles can be accomplished with sandpaper discs, and the slight extension of the shoulder into the gingival crest can be done with a diamond wheel which is safe side on both sides and has only an edge cutting surface. Notice the finished preparations show no laceration or traumatization of the gingival tissue.

Fig. 10—The preparation of the impression guide is done as follows: a small ball of soft wax takes an impression of the tooth. The ball of wax is trimmed as close as possible to the preparation outline, boxed in paper, and a stone model poured. A stone die is trimmed exactly to the outline of the shoulder. A snug fitting copper band is contoured to the outline of the preparation. Drill an air escape hole on the labial surface of the band close to the lower edge. Oil the teeth adjacent to the preparation.

Fig. 11—Photograph shows wax ball trimmed to the outline of the preparation. The impression is boxed in paper. The stone model is trimmed exactly to the outline of the shoulder. Also shown is the snug fitting copper band.

Fig. 12—Place copper bands in position on the prepared teeth.

Fig. 13—Fill a small shallow tray with fast setting stone, press against copper bands and adjacent teeth.

Fig. 14—When the stone is set, remove the tray with copper bands embedded in stone.

Fig. 15—Fill bands with compound and take an impression. The guide will position itself on the adjacent teeth and assure an accurate impression. The reason for a guided impression is the many failures encountered in jacket crowns. Beautiful restorations have been made at the time. Six months later the patient returned with gingival recession. The reason was this: Copper bands were forced on the tooth and cut the gingival attachment. It was traumatized, it reattached but at the same time receded. In the impression technique illustrated this difficulty is overcome.

Fig. 16—Inlay wax covers the preparation.

Fig. 17—A plaster impression is taken over the preparation which will provide a working model.

Fig. 18—A wax bite is taken.

Fig. 19—Temporary crowns are put on.

Fig. 20—Preparations have been covered with calcium hydroxide and the jacket crowns are ready to be seated.

(*See illustrations Nos.* 11-21 *on pages* 444-45)

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21. The finished restorations.

Fundamentals of Nitrous Oxide Anesthesia

K. C. McCARTHY, M.D., Toledo, Ohio

Elementary Axioms in Anesthesia

The first and most fundamental axiom is: "No anesthetic drug is of any real benefit to the patient." Anesthesia is at best a necessary evil and is to be tolerated only because in its absence modern surgery would be impossible. All anesthetic drugs are dangerous and the anesthetist should therefore observe the following precautions:

(1) Give the smallest effective dose.

(2) Keep the duration of the administration as brief as possible.

(3) Utilize drugs of minimum toxicity.

(4) Use as few agents as possible.

Overmedication Observed—The following technique was recently noted: (1) the patient was premedicated with a barbiturate, morphine and atropine. (2) Spinal analgesia was induced. (3) A barbiturate was then given intravenously; next inhalation anesthesia was started with cyclopropane, to which ether was added later, and finally a muscle-relaxant was used. With such a multiplicity of agents how could responsibility for toxic reactions be fixed.

Problem of Toxicity—Is it reasonable to assume that because small doses of many drugs are used, the toxicity of a larger dose of one drug is not equalled? What about summation and synergism? By the use of fewer agents and with a better understanding of their actions, the anesthetist will avoid many of the difficulties noted in the reports of anesthesia study commissions.

Practical Application of Fundamental Principles—Pharmacologists agree that nitrous oxide produces minimal physiologic disturbance, is the least toxic anesthetic agent, and if it were more potent would be the ideal anesthetic. Unsupplemented nitrous oxide is adequate, however, for a great many common operations and is so used in nearly half of our own anesthetic procedures. In another quarter of the anesthetic procedures the anesthesia is adequate but the relaxation is insufficient and is obtained with a muscle-relaxant, usually d-tubocurarine. With the remaining quarter of the anesthetic procedures supplements are used on occasion to avoid hypoxia. The supplements used most often in this series are Sodium Pentothal® or trichlorethylene.

Technique for Successful Utilization of Nitrous Oxide—Strict adherence to certain rules is essential for successful and safe use of nitrous oxide in an increasing number of cases. Enough of the agent must be given to anesthetize the patient, and enough oxygen to prevent hypoxia. This can be done most easily by observing the following principles of technique.

Dilution

Nitrous oxide is of such low potency that it cannot be diluted with even small amounts of nitrogen from the air. Dilution makes the anesthetic mixture ineffective, hopoxic, or both. All leaks must therefore be carefully excluded:

1. Face masks must fit with great accuracy.
2. Endotracheal intubation with cuffs or packing in the throat should be used in nose and throat operations.
3. A few millimeters of pressure in the system will help to prevent leaks from diluting the anesthetic mixtures.
4. High concentrations of nitrous oxide and minimal amounts of oxygen during the induction aid in keeping rebreathing during induction to a minimum so that the exhaled nitrogen, which is being replaced by nitrous oxide, may escape and not be reinhaled to dilute the mixture.

Premedication

The preparation of the patient by the use of hypnotic and narcotic drugs, in character and dosage sufficient to produce psychic and metabolic depression, is obligatory. Morphine is highly valuable in premedication for no other drug will add more to the ease of induction and to the safety of maintenance of nitrous oxide anesthesia. By carrying the patient into a stage of hypnosis on sedative drugs, a smaller burden is placed on nitrous oxide. Deeper anesthesia can be produced with less danger of hypoxia.

Maintenance of Anesthetic Mixtures

In many cases the margin between inadequate anesthesia and hypoxia is small. To maintain a correct level of

(*Continued on page* 458)

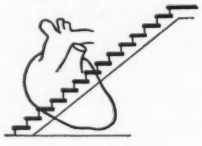
Twelve Questions Answered on General DENTAL ANESTHESIA

M. HILLEL FELDMAN, D.D.S., New York

DIGEST

This article presents an authoritative discussion on twelve important problems encountered in the use of general dental anesthesia.

Question One



To what extent should a patient be medically evaluated prior to the administration of a general anesthetic in the dental office?

Discussion

(a) Basically, the aims of anesthesia are alike whether a procedure for major surgery or the minor experience of the patient in the dental chair is discussed. Safety is the first consideration. A return to consciousness after the induction period with as little risk as possible is desired.

(b) Of first importance is the ability of the heart to do its work. If the heart is able to do its work it may be trusted regardless of the presence of murmurs, or disturbances of rhythm. A cardiologist has made the following comment to patients who were worried about a heart murmur: "A Chevrolet motor doesn't make the same kind of noise as a Ford engine, but they both get you there. If you have a murmur, and the next person doesn't, that does not say his heart is better than yours. He may die of myocardial failure and you may live to ninety!" The stethoscope is not particularly helpful. What we must know is what the heart is able to do. This can be evaluated by certain tests, revealed especially by what the patient tells. Incapability of the heart is manifested in two ways: (1) congestive failure, and (2) anginal heart failure, or anginal syndrome. In congestive heart failure there is impairment of circulation with inadequate oxygen delivery, and in the anginal syndrome pain occurs in the chest on effort. Both conditions represent subnormal anesthetic risks.

(c) Labored breathing, and edema in the extremities are noticeable in conditions of congestive failure. Such patients puff when they climb stairs and the ankles swell at the end of the day. A single inquiry will bring out the facts in almost 100 per cent of the cases that are real risks. Any anginal pain is always evidence of subnormal risk and especially liable to sudden disaster.

The preliminary sizing-up of the dental patient consists of a simple question: Does the patient have distress on effort? Is he able to climb stairs, walk, and get around without becoming short of breath or having chest pressure? If the answer is in the affirmative, a majority of these cases may be immediately eliminated for anesthesia in the dental office as potentially serious risks.

Question Two

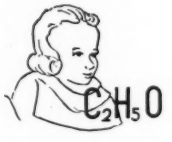
Discuss the preliminary examination and medication of the patient preceding anesthetic induction.

Discussion

While preliminary medication has advantages for both the patient and the dental surgeon, it is felt that this procedure should be reserved for those who appear to be extremely difficult to manage. An interview with the patient should supply sufficient information about the apprehensiveness and general nervous tensions that would call for drug sedation in addition to efforts at psychic control. The administration of a suitable narcotic agent before the anesthetic induction may be most advantageous.

The unusually apprehensive patient is a greater anesthetic risk. He goes into shock more readily than those who show a satisfactory mental attitude and who will cooperate. The alcoholic type, and the athletic type certainly need sedation prior to anesthesia induction. Nembutal® may be used to secure a drowsy patient. In a subsequent question intravenous sedation will be discussed.

Question Three



What is the proper procedure for managing a children's anesthetic procedure?

Discussion

Children should be given general anesthesia for the removal of teeth. The shock attending a local anesthesia may stay with them for a long time and make for a poor dental patient for the future.

Rapid Induction Essential—Ethyl chloride is found to be excellent for rapid induction. If the child will not

permit the introduction of a mouth prop, a thick gauze sponge may be pushed between the teeth and when unconsciousness is reached a prop may be introduced.

Routine Method Established—The gas apparatus should be in readiness, and the nasal inhaler applied for delivery of the anesthetic gases, oxygen and nitrous oxide, or oxygen and Vinethene®, for maintenance of narcosis. This procedure should be routine, to eliminate the need for hurrying the surgery. Even if only a single tooth is to be extracted, incidence of fracture requiring more operative time, might occur. If the child shows signs of premature awakening, surgery is ineffective and frustrated.

Nasal Application Preferred — Nasal delivery of anesthetic gases permits a more comfortable leisurely procedure for the operator. In addition it affords the advantage of having oxygen available for possible emergency need.

Question Four

What untoward reactions might develop under a general anesthesia and how may they be coped with?

Discussion

Disturbances of anesthesia may result from premature awakening due to dilution of the anesthetic gases with too much air around a faultily adapted inhaler or ineffective mouth curtaining, or to sudden onset of nausea. The alert operator will detect signs of retching and pallor which usually precede vomiting. Surgery should be discontinued at once and the mouth and throat cleared with the aspirator and pieces of gauze.

Mouth Prop — Another element that may produce disturbance of anesthesia is the handling of the mouth prop. When extractions are planned for both sides of the mouth, the prop should be seated on the opposite side of the mouth before removing the first prop. If the jaws close suddenly during the transference of surgery from one side to the other a complication results which may be difficult to correct.

Respiratory Embarrassment—It is necessary to be on the alert to detect symptoms of respiratory embarrassment due either to the accumulation of mucus in the nose or throat, or to pressure against the mandible, forcing it backward, or from the tongue as it is pressed backward during surgical manipulations.

Respiratory embarrassment may result from an overdosage of nitrous oxide or a deficiency of oxygen.

The danger signals to be on the watch for are cyanosis, stertor, dilated pupils.

The airway should be kept clear, the chin raised and held forward, the tongue pulled forward, manual pressure applied against the diaphragm and oxygen with carbon dioxide administered in increased amount.

Emergency Medication—It is well to have on hand some emergency medication such as caffein sodium benzoate 7 grains, epinephrine 1:1000, and Metrazol®. These preparations come in cartridge form similar to novocain cartridges, and are injected subcutaneously. In cases of a sudden onset of angina pectoris, an amyl nitrate vaporole may be broken and held to the nose or a tablet of nitroglycerine, 1/150 grain, placed under the tongue. Collapse of a patient who is hypertensive is better treated with Metrazol, since epinephrine is potentially dangerous in high blood pressure cases.

Artificial respiration should be resorted to in cases of arrested respiration. Total reliance should not be placed upon drug stimulation.

Question Five

Discuss some of the important factors concerned with the induction and maintenance of general anesthesia for removal of teeth in the dental office: pressure, face and nasal inhaler, props and aspirator.

Discussion

Successful general anesthesia results from a series of acts by the operator that are simple, yet essentially important:

(1) The patient should be comfortable to begin with, seated upright, with the head not tilted backward, the mandible, when the mouth is open, horizontal with the floor.

(2) Tipping the head backward facilitates throat complications from blood, mucus, and tooth debris.

(3) The chin should be held up at all stages of the anesthesia in order that a free airway be maintained.

(4) A mouth prop should always be introduced prior to induction. The act of introducing a prop after the administration of gases has commenced may frequently initiate troublesome resistance by the patient who in the semiconscious state may think surgery has been started before complete anesthesia has been established. If such an event actually occurs surgery may as well be discontinued immediately. To continue treatment means a contest which isn't worth all the potential grief and mental torment for patient, dentist, and assisting staff.

(5) To continue the induction of anesthetic with a resistant patient is inadvisable also from the viewpoint of the conditions under which surgery would be performed: even if the patient is made unconscious he may usually be found in what might be called a "sitting crouch" with the prop expelled and the mouth shut tight.

Respect Patient's Attempt to Communicate—Extreme care should be taken to prevent pressure against a tender or swollen area or pinching of the lip against the prop. Patients experiencing this discomfort may consciously resist and may want to say that they are uncomfortable. To misunderstand the patient's intentions, attributing his attitude to excitement brought about by the

anesthetic may lead to unbalanced disturbed anesthesia.

Nausea Avoided—Patients should be instructed to have no food or drink for several hours prior to anesthesia. Nausea during anesthesia can be extremely troublesome.

Premedication—Preliminary sedation is advisable for all extremely apprehensive patients.

Use of Nasal Inhaler—The application of a nasal inhaler for induction of anesthesia is occasionally objected to by the patient. It has been found to be more suitable to induce anesthesia with a comfortable large face mask, a transparent plastic type fitted with an inflated rubber rim, and when narcosis has been established, to switch to the nasal inhaler.

Excitement not Induced by Anesthetic Agent—It should be understood that the excitement phenomena attending inhalation anesthesia are most frequently caused by the operator rather than by the physiologic and psychic reaction of the agents. It is also important to keep in mind that anesthetic gases had best be delivered at atmospheric pressure, fifteen pounds per square inch, at sea level. Any excess pressure causes uncomfortable frustrating resistance movements.

Rebreathing Technique Not Advised—A technique in which the nasal inhaler vibrating diaphragm is shut off so that the patient must rebreathe gasses is not favored. The sensations produced by such a technique, in addition to those produced by the delivery of gases at excess pressure are much the same as those experienced when walking against a strong wind. To subject the average normal person to such a technique is exceedingly uncomfortable. For the cardiac, or the hypertensive, pregnant, or the aged patient it is a procedure fraught with danger.

Oxygen Never Reduced—Oxygen should be the first gas turned on and at no time should oxygen be reduced or restricted. A small percentage of carbon dioxide, approximately 5 per cent is recommended as one of the gases delivered. This may be from a tank containing 95 per cent oxygen and 5 per cent carbon dioxide. This stimulates respiration by helping overcome a tendency to holding the breath. It also makes available prompt delivery of carbon dioxide for emergency need.

Supplementary Agents—Since nitrous oxide, the agent most frequently employed for inhalation anesthesia in dental offices, is inadequate without restricting oxygen below the atmospheric 20 per cent, it is apparent that some supplement should be added which will permit an increased oxygen quotient without awakening the patient as would happen in most cases if it were attempted to deliver 80 per cent nitrous oxide and 20 per cent oxygen. True, some patients can be satisfactorily anesthetized with this 80-20 mixture but for general availability the following technique is recommended. The agents used as supplements are ether, Vinethene®, trichlorethylene, and ethylene. The first three may be placed in an ether bottle attachment through which the gases flow to the inhaler from the machine. The latter, ethylene, would have to be in a tank hung on the gas apparatus along with the tanks of oxygen and nitrous oxide.

Cyanosis Should Always be Prevented—In the presence of a subnormal heart, and it is not always possible to know in advance that a heart condition exists, a marked oxygen restriction is potentially a serious hazard. In a normal heart the effect of anoxia is to dilate the coronary arteries and thus guarantee oxygen supply to the heart muscle. If the patient has coronary disease, however, the arteries cannot dilate, hence the myocardium is deprived of oxygen. A large percentage of heart failures under nitrous oxide is probably caused in this way.

Throat Should not be Packed—Successful operative procedures under general anesthesia are materially aided by the constant use of the aspirator to clear the field of surgery and to check the accumulation of fluids in the mouth with their tendency to travel toward the throat. A final point among the important factors involved in the induction and maintenance of general anesthesia: Do not pack the throat. The gauze sponge is held or placed just posterior to the area being operated on. Packing the throat is potentially hazardous, since the airway from the nasal passages down to and into the trachea may be closed off.

Question Six

What is balanced anesthesia?

Discussion

Balanced anesthesia has been described as the use of a combination of agents to make it possible for the patient to respire a mixture high in oxygen, which would not be possible if nitrous oxide alone were used. When nitrous oxide has been fortified with ether or Vinethene, or trichlorethylene, a more satisfactory combination is obtained which permits the oxygen in the respired mixture to be raised to atmospheric physiologic needs.

Question Seven

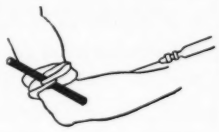
Discuss intravenous medication as a preoperative sedation and as an anesthetic.

Discussion

Many dental anesthetists are finding it advantageous to induce general anesthesia with a barbiturate such as Sodium Pentothal® intravenously, and continue the maintenance with nitrous oxide and oxygen. In these cases the depressing effect of the barbiturate is avoided, and the Pentothal acts as an excellent premedicant upon which the inhalation anesthesia is built. It is better to take advantage of the quick-acting sedative followed by the inhalation technique thus avoiding unnecessary depression for the ambulatory patient. For patients who object to a mask on the face, the procedure of intravenous sedation to the nose is excellent technique and is being used extensively. Resistant patients are quickly controlled, and more successfully, than if given oral medication. The injection of 5 to 10

cubic centimeters of a 2½ per cent solution of Sodium Pentothal is recommended for this purpose, prior to the adaptation of the inhaler for the nitrous oxide and oxygen. Speaking to the patient as the agent is being injected and noting his response is a guide as to when to withdraw the needle from the vein.

Question Eight



Discuss a simple office procedure for intravenous anesthesia for brief surgical technique.

Discussion

The operator should examine both of the patient's arms to determine whether the left or the right veins are more accessible for venipuncture. If the veins in the antecubital fossa are not much in evidence, it may be necessary to enter the vein on the dorsal aspect of the hand. Gauge 22 is the type of needle preferred in the region of the elbow, and gauge 23 when the dorsal aspect of the hand is chosen. The injection is made from a seated position for both operator and patient which prevents unexpected movement which may disturb the relationship of needle and vein once the injection has begun.

Quantity Used—Either a 10 or 20-cubic centimeter syringe is used. The operator should assess the individual patient to determine whether a larger than ordinary dosage is necessary to produce sufficient sedation. The athletic type, the alcoholic, the extremely nervous type may require the 20-cubic centimeter syringe. The larger quantity should therefore be ready for use if needed.

Method of Injection—Spraying of ethyl chloride at the site of injection is advisable. After the venipuncture a slight amount of blood is withdrawn, taking care that a vein and not an aberrent artery is entered. The tourniquet is released as soon as blood is seen to enter the glass syringe. Injection of 1 or 2 cubic centimeters is made slowly, while the operator observes closely to note the reaction, if any. Withdrawal of blood is checked at intervals during the injection to make sure none of the anesthetic has passed out of the vein.

Anesthetic Effects Observed—As more Pentothal is injected, the operator notes the gradual effects of sedation. Some patients seem to be almost unconscious with a dosage as small as 3 or 4 cubic centimeters. Some will take up to 10 or 15 cubic centimeters. When there is no response to questions or comments, the needle may be removed, and the nasal inhaler applied for the nitrous oxide and oxygen delivery. From this point on, the procedure is the same as for the usual inhalation technique.

Question Nine

Discuss general anesthesia for the cardiac patient.

Discussion

The administration of an inhalation anesthetic for a patient who is suffering from cardiac disability can be made as safe as for the unhandicapped patient. The important considerations are (1) that the gases be permitted to be inhaled comfortably, without excess pressure, and (2) that oxygen be kept at a high level, at least 20 per cent, and even as high as 50 per cent. This is made possible by supplementing the nitrous oxide with a more potent agent. Vinethene or ether, or trichlorethylene are being generally used for this purpose.

Complete Cooperation Necessary—The important need is for complete cooperation by the cardiac patient. It is important to remember that a cooperative handicapped patient is a safer anesthetic risk than an uncooperative physically well patient. With proper care and satisfactory sedation, unless a patient shows signs of cardiac decompensation, oxygen-rich inhalation anesthesia is being extensively employed for the cardiac patient.

High Altitude Effects Simulated—Cardiac patients do not breathe comfortably if taken to a high altitude. High altitudes are simulated by a reduction of the oxygen intake in the anesthetic volume. The importance of this precaution is seen when we consider that we may be dealing with a cardiac damage without symptoms, or with symptoms that have not been diagnosed as such.

The cardiovascular system is materially supported when the patient is permitted to inhale an oxygen quotient as high as 40 to 60 per cent.

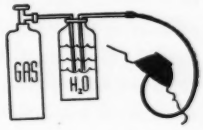
Question Ten

Discuss procedure of general anesthesia for the pregnant patient.

Discussion

No contraindications for the administration of a general anesthetic for the pregnant patient have been noted by the author. Given a fully cooperative patient with a rich oxygen mixture from the start, permitting no cyanosis at any stage, general anesthesia may be successfully administered. Cooperation by means of premedication is not sufficient. Psychologic cooperation is an essential in satisfactory anesthesia. The patient must want this service and not be coerced into receiving it. All potentially harmful struggling must be avoided.

Question Eleven



Discuss explosion hazards associated with general anesthesia.

Discussion

Nitrous oxide is free from the hazard of explosion or inflammability under all circumstances. This danger is, of course, associated with the use of ethylene, cyclopropane, and nitrous oxide-ether mixtures.

Precautions Effective—It should be noted that if proper precautions are employed even inflammable agents may be used without mishap. This re-

quires passing the gases through a water bottle for humidification, and employing an aspirator fitted with an insulated cut-off switch, to avoid sparks.

Equipment Kept Leak Proof—High humidity in an operating room is thought to lessen the danger from accumulation of static charges.

Oxygen an Initiating Factor—Oxygen itself may be the factor in initiating explosibility. Turning on the oxygen under high pressure when there might be oil or grease nearby on the apparatus could ignite the oil and result in a violent explosion. The presence of oil in the valve of an oxygen cylinder or in the reducing gauge could produce explosion from the sudden release of a high pressure of oxygen. Electric cauteries should not be used in the presence of inflammable gases.

Question Twelve

What should be a reasonable operating period for office procedure?

Discussion

While there can be no fault found with a procedure in a dental office consuming half an hour or more if the operator and assistants are functioning smoothly, in his experience the author does not favor lengthy procedures. When more than ten or fifteen minutes are required for the completion of the case, it might be better to use a local anesthetic. There are exceptions, but to avoid the development of difficulties, office surgery should not be prolonged.

730 *Fifth Avenue*

Investigation of Canker Sores

Query

Has anything new been discovered about recurrent "canker sores" or aphthous stomatitis? A finding has been noted that may give some investigator a clue. In several patients whenever one develops it appears that an aphthous patch comes out on the papilla of the parotid duct or in the floor of the mouth near the sublingual ducts. Could there be a connection with some agent in the saliva or a chemical change in the saliva that may precipitate the local break in the mucous membrane that then results in a "canker sore"? If, as many suspect, aphthous stomatitis is due to an allergy or some gastrointestinal upset, why do not these ulcerations appear elsewhere in the gastrointestinal tract, rectum, or vagina?

Discussion

At present there is known no specific noxious agent or chemical change in the saliva that would cause aphthous stomatitis starting on the papilla of the parotid duct or near the sublingual ducts. No such agent has been demonstrated except in heavy metal poisoning, such as by mercury and lead, which are excreted in part by the salivary glands. It is more likely that the local lesions in the mouth represent a focal manifestation of systemic disease. Such lesions have actually been demonstrated at sigmoidoscopy in allergy, leukemia, agranulocytosis, uremia, and tuberculosis. Intestinal manifestations of systemic disease, occur in many disorders, like oral manifestations of systemic disease, and were not recognized until intensive sigmoidoscopic examinations were carried out. Sometimes intestinal symptoms are completely absent, but usually abdominal pain and diarrhea are present in the case of ulcerated lesions, and sigmoidoscopy reveals the same type of inflammatory reaction as is seen in the mouth. The mechanism in the bowel is generally the indirect hematogenous excretory mechanism (as in plumbism), in which the noxious agent is transported in the blood stream from a distant focus and is excreted through the wall of the bowel into the lumen. A similar mechanism may explain the lesions in the mouth if the offending agent cannot be demonstrated in the secretion of the salivary ducts.

Adapted from Queries and Minor Notes, *Journal of the American Medical Association* **157**:301 (January 15) 1955.

What is Psychoanalysis?

Franz Alexander, M.D.

THE THESIS that psychoanalysis is a method which helps the individual accept his environment is more than an oversimplification. It is erroneous because it neglects one fundamental aspect of psychoanalytic treatment. Psychoanalysis aims at something more than merely helping the patient adjust himself to the social system in which he lives. Psychoanalysis is a true product of that phase of Western civilization which had deep respect for individual differences that people actually have in our complex free societies. It aids a person in the integrative task in which he failed to reconcile his own basic personality with his environment without sacrificing that intangible something which makes him a person different from all others. Psychoanalysis is the most individual type of treatment which medical science has ever produced. Each case is a unique problem. What the therapist is primarily interested in is not the nosological classification of a person, not in what way he is similar to others but in what way he differs from them. Every person has his own potential formula of adjustment. Psychoanalysis aims at an adjustment which takes cognizance not only of a given social environment but also of the uniqueness of every person. From this perspective psychoanalysis gives reality to the expression "the respect for the dignity of the individual," a term which is often used in a vague and well-nigh meaningless fashion. This respect for individual difference explains why psychoanalysis is unthinkable and is therefore prohibited in totalitarian societies.

From *United States Armed Forces Medical Journal* **7**:1039 (July) 1956.

Treatment of Some ORAL LESIONS *with Terramycin*

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DIGEST

A terramycin solution having a concentration of 250 milligrams per cubic centimeter of sterile water or calculated amounts of terramycin powder was used in the antibacterial treatment of a number of oral conditions with satisfactory results. This article reports specific situations requiring treatment and the method employed.

Treatment of Surgical Wounds

Fifty exodontic wounds were treated by applying a suitable quantity of terramycin powder into the alveoli, depending upon the approximate volume of blood each contained. The drug was mixed with the blood, after which pressure for hemostasis and suturing, where indicated, was executed.

Results with Control Cases Compare Favorably—The clinical results of this procedure were compared with fifty control exodontic wounds not subjected to any medication. Sockets treated with terramycin showed (1) a more rapid postoperative hemostasis, (2) less pain, and (3) a shorter healing time.

Other Complications Considered — Since alveolitis (dry socket) and postoperative osteomyelitis sometimes complicate the extraction wound, terramycin having a wide range of antibacterial activity may be useful in eliminating these conditions.

Postoperative Complications—It is probable that wounds created by the removal of cysts and impacted teeth, apicoectomies, alveolectomies, and fractures could be partly treated by the application of terramycin to reduce postoperative complications.

Stomatitis

A few cases of pyorrhea were treated with the terramycin solution to combat the associated infection as a supplement to mechanical therapy.

Method Used—The affected areas were isolated with cotton rolls and the medicament applied with cotton pellets and allowed to remain from 5 to 6 minutes. After two or three treatments, 24 hours apart, the gingivae resumed their normal color and consistency.

Possible Treatment of Associated Conditions—It is possible that specific staphylococcal and streptoccal gingivitides would also respond to this method of terramycin treatment since the etiologic agents are extremely sensitive to the drug.

1. In Vincent's infection local application of terramycin supplemented by mechanical and other indicated procedures in treatment can bring the disease under control. In this case affected areas may be isolated with cotton rolls when the terramycin is applied. The drug can remain in contact with the tissues from 6 to 8 minutes. This treatment should be repeated every 24 hours until the infection is brought under control.

2. The *Borrelia Vincentii* and *Bacillus Fusiformis* together with secondary invaders such as *Staphylococci* and *Streptococci* associated with the disease are all sensitive to terramycin.

Herpes Simplex Virus — Woodburne[1] indicated that recurrent aphthae and herpetic stomatitis were manifestations of the herpes simplex virus. Several lesions of this type including canker sores were treated by topical applications of terramycin in the following manner: (1) The affected areas were isolated with cotton rolls and the terramycin applied on the lesions and allowed to remain 4 to 5 minutes. (2) After an average of two treatments in 48 hours, pain and edema subsided and the lesions disappeared in a shorter time than that normally required for self-resolution without any medication.

Pericoronitis — Several cases of pericoronitis were also treated with terramycin: (1) The infected areas were isolated with cotton rolls and terramycin powder was applied liberally with sterile cotton pellets dampened with sterile water and allowed to remain from 3 to 4 minutes. (2) After a few treatments, 24 hours apart, the cardinal signs of inflammation disappeared. Should other factors which predispose to a periocoronitis be present, surgical or other therapy should supplement this procedure to prevent recurrence.

Invading Streptococci in Advanced Lesions — Burket[2] states that *Cancrum Oris* (Noma) is a fusospiroch-

[1]Woodburne, A. R.: Herpetic Stomatitis, Arch. Dermat. & Syph., **43**:543, 1941. Cited by Burket, Lester W.: Oral Medicine—Diagnosis and Treatment, ed. 6, Philadelphia, J. B. Lippincott Company, 1946, pp. 146.207.

[2]Burket, Lester W.: Oral Medicine—Diagnosis and Treatment, ed. 6, Philadelphia, J. B. Lippincott Co., 1946 pp. 59-62.

etal infection with secondary invading oral streptococci appearing in advanced lesions. The mortality from this disease is between 70 and 90 per cent. It is possible that terramycin may help in combating the organisms involved in this lesion.

Discussion

In all applications of terramycin to oral lesions due regard should be paid to maintaining an optimum antibacterial concentration for an effective time period after which the excess should be eliminated from the mouth if possible. The retention of the antibiotic in low salivary dilution for uncontrolled prolonged periods can predispose to sensitivity and the creation of resistant strains of organisms and probably serve as fodder for nonsusceptible organisms.

In planning any type of local antiinfective therapy, whether the organisms involved constitute the primary causes of the disease or whether they are merely secondary invaders, adequate consideration must be given to parenteral and other supplemental treatment if indicated to achieve the best results.

Summary and Conclusions

A terramycin solution having a concentration of 250 milligrams per cubic centimeter of sterile water or terramycin powder was locally applied to combat organisms known to be commonly involved in immediate extraction wounds, gingivitis, aphthous ulcers, canker sores and pericoronitis. Clinical observations showed rapid resolution in all of these treated lesions. No untoward reactions were noticed. Judging from these findings it is likely that local applications of this antibiotic may also be useful in the antibacterial treatment of other allied oral conditions and probably may be of some help in reducing posttraumatic complications if applied topically as part of a first aid frontline treatment of battle wounds.

Terramycin has notable powers of live or dead tissue penetration and is selective in destruction, thus upon local application it becomes a powerful measure to destroy susceptible organisms but at the same time it is conservative in sparing the energy of human tissue cells encountered in its path of operation.

464 *Medical Detachment (DS)*

The Nutritional Significance of the Carbohydrates

Sucrose and Sugar Products

The use of sugar in the diet dates back to a very early period in man's history, and its importance in the diet of modern man is indicated by the per capita consumption in the U. S. of nearly a hundred pounds of sugar per year for the last 40 years. Sugar provides calories at the lowest cost compared with other common foodstuffs.

Refined Sugar Lacks Protective Elements—Refined sugar, one of the purest organic chemicals available in huge quantities, does not, however, provide vitamins, proteins, amino acids, lipids, and minerals. The "naked purity" or uncovered calories of pure sugar naturally make it a threat to good nutrition if protective foods are not incorporated in the diet.

Vitamin and Mineral Value in Natural Sugar Small — Extravagant claims have been made by food cultists and faddists concerning the vitamin and mineral value of certain raw, crude, and "integral" sugars. An extensive study of the vitamin and mineral composition of raw sugars, soft sugars, turbinado sugars, "integral" sugar, and even dried cane juice indicates that such materials do contain these nutrients, but in such small quantities as to be completely impractical as nutritional sources.

Molasses in Human Diet—Blackstrap molasses does contain more vitamins and minerals than the sugars mentioned above. But even here if one should be so misguided as to consume a pound of blackstrap molasses per day, the reward would be about 64 per cent of the recommended niacin allowance and 34 per cent and 54 per cent of the thiamine and riboflavin allowances, respectively. While molasses has important nutritional attributes in the feeding of cattle for reasons other than its vitamin content, its role in human nutrition as a possible source of vitamins is insignificant.

Relationship of Carbohydrates to Caries — A recent review of the nutritional relationships of carbohydrates to tooth decay state several conclusions: (a) microorganisms are required to cause tooth destruction, (b) the absence of normal saliva results in an increase in tooth decay, (c) the form in which the various carbohydrates are fed is important. With solutions of sucrose there is little tendency for carious lesions to develop, while consumption of sucrose in granular form increases caries development, (d) a genetic factor may be important in the susceptibility to caries development, and (e) the importance of rapid oral clearance of sugar is one of the strong determining factors on the extent of tooth decay.

Adapted from *Borden's Review* of *Nutrition Research* **16**:91 (November-December) 1955.

The EDITOR'S *Page*

THE AMOUNT of blood lost during oral surgery has never been a matter of particular concern to dentists. Because large vessels that require mechanical hemostasis are not involved in mouth operations and the normal clotting mechanism is seldom interfered with, dentists have been quite casual about the amount of blood lost. Their chief concern has been the fear that a hemophiliac might come their way or that some secondary hemorrhage might occur as an emergency.

A study reported among 175 oral surgery patients showed that the average blood loss among them was 223 milliliters.[1] Translated into other frames of measurement that represents 223 cubic centimeters, about seven and one-half ounces, or slightly less than one-half pint of blood. (The total blood volume is considered to average 32 pints.) The patients who lost about one-half pint of blood averaged 18 extractions each and were under surgery for an average of 30 minutes. As would be expected, fewer extractions and a shorter surgery time resulted in less blood loss.

Any casualness to this subject should be dispelled if we realize that "the blood loss associated with extraction of teeth and alveolotomy in the average patient compares with blood losses encountered in major surgery." For example, blood lost in other surgical procedures averages: appendectomies, 10 cubic centimeters; thyroidectomies, 249 cubic centimeters; hysterectomies, 358 cubic centimeters; brain operations, 1287 cubic centimeters; hemorrhoidectomies, 55 cubic centimeters.

Preoperative determinations of platelet counts, bleeding, clotting, prothrombin times are important. Despite normal values in these measurements, profuse bleeding is sometimes encountered. Hyperemia in the soft tissues of the mouth and granulation tissue were found to increase the amount of bleeding.

The following clinical facts were developed from this study:

1) "The extent of hemorrhage can be influenced slightly by mechanical factors such as suctioning and the use of dry-sterile sponges. Although the use of aspirators and sponges is essential to maintenance of a dry field, this influence on hemorrhage can be lessened by the use of sterile sponges wrung out of sterile saline solution or water, and by immediate suturing of open wounds."

2) "Our primary concern, however, should not be the quantitative loss of blood, per se, but the ability to evaluate and to some extent prognosticate individual blood losses so that replacement therapy may be instituted whenever needed to maintain physiologic fluid balance."

3) "The effect of reduced blood volume due to whole-blood loss can be just as disastrous to the patient undergoing surgery in the mouth or elsewhere in the body . . . The rate of hemorrhage in extraction is rather uniform, with no sudden gushes from large arteries as in general surgery, and a slow steady reduction of blood volume is better tolerated than are fluctuant rates of hemorrhage."

4) "To maintain the proper fluid level intravenous administration of a solution of 5 to 10 per cent dextrose in water is indicated in those patients in whom anticipated blood losses will exceed 300 milliliters. Precautions governing the administration of intravenous fluids should be observed. Intravenous administration is indicated when the discomfort of surgery in the oral cavity makes the patient extremely reluctant to accept fluids by mouth.

"The administration of whole-blood should be considered when hemorrhage is in excess of 500 milliliters."

5) "The postoperative therapeutic regimen should include a high-quality protein diet, vitamin supplements of B complex and C, and iron in the form of ferrous sulfate."

The principles involved in *all* forms of surgery are the same: conservation of all tissues, including blood; meticulous asepsis; precision technique.

[1]Johnson, Richard L.: Blood Loss in Oral Surgery, J. D. Res. **35**:175 (April) 1956.

A Clinical Investigation of MEPHATE® *in Dentistry—Part One*

MILTON GOLDSTEIN, D.D.S., Newark, New Jersey

DIGEST

This is the first installment of a two-part article reporting the results of varied conditions encountered in an active general practice, all manifesting muscle tension, which were treated with Mephate®. Although the cases reported are limited in number, the results are promising and it is hoped that other practitioners will enlarge this initial experience by additional clinical trial.

Variety of Conditions Treated

The study of conditions treated with the drug included the following:

(1) Facial paralysis (Bell's palsy)
(2) Facial spasm
(3) Bruxism
(4) Clenching
(5) Temporomandibular joint pain (associated with muscle spasm)
(6) Apprehension and fear of dental treatment
(7) Spasm of the lips and cheeks during operative procedures in dentistry
(8) Trismus
(9) Control of spasm induced by oral reconstructions
(10) Muscle reeducation in mandibular repositioning

Muscle Spasm — While not always recognized as such, muscle spasm is a frequent complicating factor in dental procedures. The tight spastic contraction of the lips and cheeks, often beyond the conscious control of the patient, seriously interferes with routine procedures in the mouth. A special kind of spasm (bruxism) hastens the loss of teeth through its effects on the periodontium. Postoperative trismus is a rather disconcerting sequela to prolonged operative or surgical procedures; and most dentists have seen patients form a clenching habit induced by some of the many types of oral reconstruction from fixed bridge construction to full dentures.

Temporomandibular Joint Pain — This is frequently associated with spasm of one or more of the muscles which close the jaw.[1]

Hypertonicity—This condition, involving the infra and suprahyoid muscles, and the muscles of mastication may distort the position of the mandible thereby making correct determination of the rest position or gothic arch tracing difficult.

The Tense Patient — The apprehensive patient often manifests his psychic state in a somatic spasm. There are other types of spasm of interest to the dentist and examples of the need for an aid in controlling muscle function will be discussed. Clinical trial with Mephate has given promising results in a limited number of cases.

The Drug Used: Description

Mephate is a proprietary preparation consisting of 0.25 gram of mephenesin (3-0-Toloxy 1, 2-Propanediol) and 0.30 gram of glutamic acid hydrochloride per capsule. The mephenesin produces transient relaxation of striated muscle by depressing reflex excitability of nerve centers.[2]

Action of Glutamic Acid — Mephenesin tends to affect hypertonic muscles more than normal muscles.[3,4,5] The action of the glutamic acid hydrochloride is to increase the absorption of the active ingredient. Without the former, the dosage of the latter would be greater.[6]

Dosage — In adults dosage is 1 capsule per 50 pounds of body weight 4 times daily after meals and after a late snack. Extended medication is generally necessary.

Side Effects — Fortunately, side effects are rare and mild and subside on withdrawal of the medication: (1) heartburn occurs infrequently but responds readily to buffered antacids.[7] (2) Slight transient dizziness sometimes characterizes the first dose but tends not to recur. (3) Anorexia is a rare complication. (4) The drug is not habit forming. (5) By inducing muscle relaxation and by its slight action on the higher nervous centers, Mephate tends to foster a feeling of general well-being which is not followed by depression.

Rapid Metabolization — On oral administration mephenesin is well absorbed and is rapidly metabolized

[1]Schwartz, L. L.: Pain Associated with the Temporomandibular Joint, JADA **51**:394 (Oct.) 1955.

[2]AMA Council on Pharm. and Chem.: Mephenesin, JAMA **143**:655 (June 17) 1950.

[3]Berger, F. M., and Schwartz, R. P.: Oral Myanesin in the Treatment of Spastic and Hyperkenetic Disorders, JAMA **137**:772 (June 26) 1948.

[4]Gammon, G. D., and Churchill, J. A.: Effects of Myanesin on the Central Nervous System, Am. J. M. Sc. **217**:143 (Feb.) 1949.

[5]Schlesinger, Edward B.: Symposium: Skeletal Muscle Relaxants. Clinical Application of Myanesin, Tr. New York Acad. Sc. (11) **11**:5 (Nov.) 1948.

[6]Hermann, Irvin F., and Smith, Richard T.: 3-0-Toloxy-1-2 Propanediol in the Treatment of Rheumatic Diseases. Journal-Lancet **71**:271 (July) 1951.

[7]Bond, W. M.: Personal Communication, Oct. 14, 1954.

in the body.[8] The effect is produced apparently by partly or completely blocking spinal internuncial neurons.[9,10]

Contraindications

The use of Mephate is contraindicated in myasthenia gravis and in gastric ulcer.

Treatment of Bruxism

Generally considered to be a manifestation of an emotional disturbance, it was nevertheless reasoned that the muscle spasm of this condition might be lessened with prolonged Mephate therapy. The following case history reports the typical results obtained in three patients.

Symptoms — The patient, a man, age 32, was tense, apprehensive, and complained of intermittent clenching, night grinding, and disturbing general tension if "things went wrong at work." He suffered severe tension after bowling and had an uncontrollable desire to sleep immediately after the evening meal but awakened after a relatively short time and could not go back to sleep.

Results From Treatment — The patient was given Mephate capsules q.i.d. with the following results: (1) At the end of one week the patient reported relief from clenching. (2) There was no noticeable effect on his ability to fall asleep. (3) His bowling score improved by an average of 10 pins per game (probably because of the suppression of extraneous muscle tension, superimposed on the purposeful motions of the game).

Continued Improvement — Three weeks later the patient reported feeling generally relaxed. There was no clenching, he slept better, and the bowling score remained at the higher level.

Extension of Therapy Necessary— When medication was omitted for one day, the patient's original complaints reappeared, but on the next day the first dose (4 capsules) of the drug restored the patient's relaxation and freedom from clenching. Continued medication maintained the improved conditions.

Lasting Effects Noted — On final withdrawal of the drug there was reappearance of the original complaints but to a far lesser degree. The bowling score averaged only five pins better than before receiving treatment.

Comment — Extended Mephate therapy is apparently necessary to effect habituation of the relaxation and control of tension.

Treatment of Fear and Apprehension

In many patients fear of dental treatment ranks high as a deterrent to receiving treatment. Some apprehensive persons, forced to seek dental services because of acute pain or swelling, lose their apprehension on receiving considerate and painless treatment. Others need more help in developing a realistic attitude.

Premedication an Aid — It has been the author's experience that premedication with Mephate, in proper dosage and for a sufficient period prior to the dental appointment, can help to ease the patient over the first barrier on the road to complete dental care; namely, beginning the actual treatment program. Usually, when they have been introduced to the relative comfort of present day methods for a few visits, patients declare that they no longer need medicinal help.

Adjunct to Correct Dental Techniques — Mephate is not a panacea in the matter of helping the frightened, apprehensive patient but is, rather, an effective adjunct. The agent assists but does not supplant the sympathetic understanding, care, attention, or the correct surgical and operative techniques of the practitioner. Suggestions to the patient that the drug will be effective seem to add to the successful management of the patient. Calm, firmly stated confidence in the medication is always expressed by the author in this connection.

Individual Variation in Dosage— The dosage of 1 capsule per 50 pounds of body weight applies also in this usage of Mephate. It is best taken four or five times in a 24-hour period prior to the planned visit. Variations in dosage, according to the practitioner's judgment, may have to be made.

Larger Dose More Effective—In a comparative study, single dose premedication with Mephate gave slight or fair relaxation in six out of nineteen cases. On the other hand, in more than 35 patients, preparation with 4 or 5 doses invariably produced effective relaxation. The single dose study was done for the author by S. E. Gross, D.D.S.

Treatment of Temporomandibular Joint Pain

Spasm of one or more of the muscles of mastication is often associated with temporomandibular joint pain. Tenderness in the area of the joint and in the temporal, masseter, or external pterygoid muscle can be demonstrated; even the posterior cervical, trapezius, and sternomastoid muscles were frequently involved.[1]

Temporary Relief from Treatment — Schwartz[11] has successfully treated such spasms by the use of the ethyl chloride spray over the involved muscle, often obtaining only temporary relief. He has also used procaine intramuscularly.

Case History—A male patient, 24 years of age, presented with unilateral left temporomandibular joint pain associated with palpable spasm of the masseter and temporal muscles. There was limited motion and considerable pain. The onset occurred three days after an extended dental treatment which included two full crown preparations and impressions on the right side of the mandible. From the fourth to the seventh day the symptoms gradually intensified and the patient returned to the dental office.

Remission of Symptoms after Fourth Dose—Mephate therapy was immediately started: copious warm water, gentle oral lavage was also recommended. A rather sudden and nearly complete remission occurred

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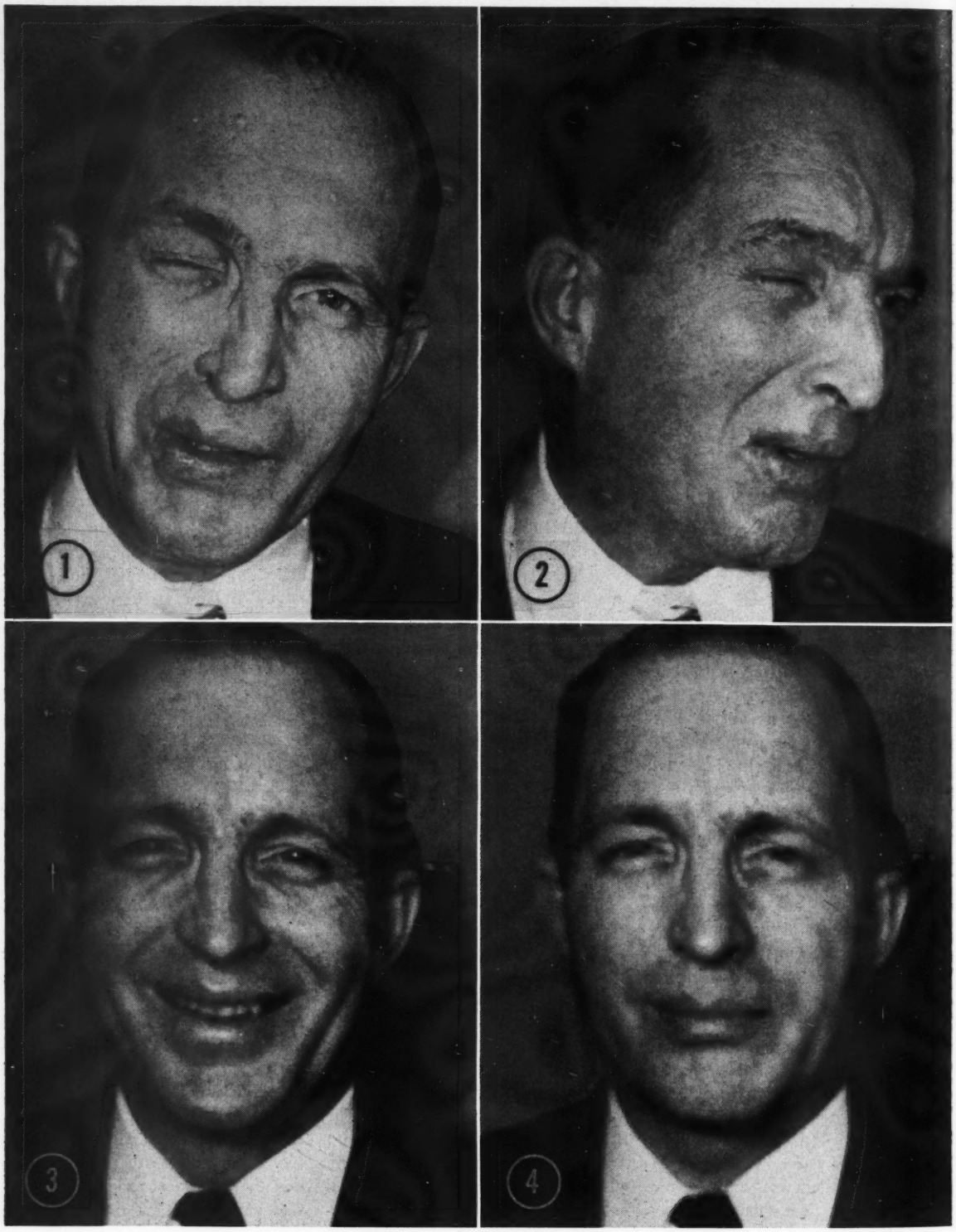
[8]Goodman, L. S., and Gilman, A.: The Pharmacological Basis of Therapeutics, ed. 2, New York, The Macmillan Company, 1955, p. 206.

[9]Henneman, Elwood. and Scherrer, Jean: Effect of B-Dihydroxy-Y-(2-Methyl-Phenoxy) Propane (Mvanesin) on Experimental Spacity in Cats, J. Pharmacol. and Exper. Therapy **97**:342 (Nov.) 1949.

[10]Smith, Wilbur, K., and Dodge, Phillip, et al.: The Site of Action of Some Chemical Agents in Diminishing Normal and Excessive Muscle Tension, Science **110**:96 (July 22) 1949.



1. *Facial spasm. This spasm lasted three minutes.*
2. *All muscles supplied by the seventh nerve are involved.*
3. *The patient is relaxed and happy.*
4. *Typical appearance after eight weeks of treatment.*

after the fourth dose. Complete cessation of the spasm, pain, and limited motion resulted within 36 hours. There has been no recurrence for three months. Other dental treatment during this period was uneventful.

Comment—The explanation in this case would seem to be that a long difficult dental treatment in which the patient was obliged to keep his mouth wide open induced muscle spasm which manifested itself in apparent pain in the TMJ and limited motion of the mandible. The relaxation induced by the drug broke the spasm.

The Drug in Relation to Oral Reconstruction

Patients whose cheeks and lips become more or less tense on receiving full dentures for the first time are often observed. Frequently, there is a forceful clenching of the teeth. Needless to say, the abnormal tone so developed in the muscles surrounding the dentures, and probably in the tongue sometimes as well, mitigates against the best possible retention and stability of the dentures.

Drug Prescribed—The author has prescribed Mephate, starting a day or two prior to the insertion of dentures to help control this tendency and with satisfactory results.

Effort to Control also Necessary—The operator should not depend on the medication exclusively but should explain the need for conscious effort on the patient's part to control the tendency to tense the involved muscles and to avoid clenching. The control of clenching assists in limiting the development of soreness in the underlying tissues, and if continued over a period of about two weeks, may prevent the development or recurrence of a bruxating habit. The fact that the drug is not habit forming permits its free use over an extended period.

Use in Facial Spasm

This is a spasm of one side of the face involving all of the muscles of expression (Fig. 1). The onset of each spasm is sudden and uncontrollable, and occurs a number of times per hour. It is characterized by tight fixed muscular contractions.

Case Report—A male patient, aged 51, was involved in an automobile accident in 1929. Torticollis was the only symptom that developed immediately. There were no bruises, contusions, or fractures.

Symptoms of Spasm — Within three months symptoms of spasm appeared, first in the upper right eyelid, described as a "tightening," and then involving the whole side (Figs. 1 and 2). A neurologist prescribed barbiturates which were taken for about ten years in varying quantities and frequency. If the dose was sufficient at least partly to control the spasm, it was also sufficient to curb the patient's activities seriously.

Right Side of Face Affected—Over a period of 25 years the patient sought help from neurologists, general medical practitioners, chiropractors, and physiotherapists. There was at best only transient relief of symptoms. Spasm of the muscles of the whole right side of the face was the patient's obvious complaint. Figure 1 shows the typical appearance at the height of seizure. The patient described severe twitching at times, even involving the platysma as indicated by the patient.

Intensity of Spasm Impossible to Control—The spasms were observed to occur as many as 8 to 10 times in an hour. Each lasted from 2 to 4 minutes. The patient tried to influence both the onset and recession of the spasms but obviously was unable to do so. Discussion of the intermittent disfigurement noticeably intensified the patient's distress.

Drug Recommended—It was suggested to this patient that Mephate might be helpful in his case because the drug had proved effective in reducing or eliminating spasm of muscles. A trial therefore seemed worthwhile. It was pointed out that to the best of our knowledge this was the first application of the drug in this condition. The dosage would be twelve capsules per day (3 capsules q.i.d.) and it was predicted that there might be some slight side reactions such as heartburn or a transient dizziness. Having had little help in 25 years, the patient was eager to try the agent.

Relief Obtained—In six days the patient reported the following gains: (1) more restful sleep, (2) sleep continued an hour longer each day, (3) the intensity of the spasms was decreased, (4) spasms occurred less frequently.

Further Improvement Noted — At the end of two weeks of Mephate therapy muscle spasms lasted 15 to 20 seconds and occurred two or three times an hour instead of 8 to 10 times. The patient's co-workers noticed a calmness in his manner. Facial twitching occurred once or twice on arising.

Exercises Prescribed — Exercises were recommended to strengthen the tone of the unaffected left side. These included (1) stretching the cheek from within with a spoon and pulling in forcefully, and (2) pulling the left corner of the mouth upward and backward.

Dosage Reduced—At the end of six weeks the dosage was reduced to 2 q.i.d. then to 2 t.i.d. Occasionally the patient omitted taking the drug with no noticeable effect. Therapy was withdrawn completely at the end of eight weeks. The worst spasm that occurred thereafter consisted of an infrequent twitch. Figures 3 and 4 show the maximum improvement in this case.

Recurrence—At the end of nine months symptoms began to recur. Two capsules q.i.d. quickly eliminated recurring symptoms.

An Unusual Case

The patient in this case was a hard working, intense law student who could not control the tightening of his lower lip during any attempted dental treatment. At times during cavity preparation he also experienced an uncontrollable shaking of the entire body and a stamping of the feet against the foot rest. The use of local anesthesia did not alter these phenomena. The patient said that it was the noise and vibration that brought on the tension and shaking.

Premedication Helpful — The use of Mephate, 4 capsules one hour before each visit, eliminated the lip tension and decreased the violence of shaking. Subsequently even the shaking did not occur.

Recurrence Without Premedication

—At the patient's suggestion, one dental treatment was tried without Mephate premedication and the original manifestations recurred.

Treatment in Postoperative Trismus

Six hours after the removal of an impacted lower third molar, the patient reported a severe trismus. Examination showed the greatest opening at the incisors to be about 3 or 4 millimeters. Even this amount of opening caused considerable pain. Exercise to break the muscle tension, generally effective in relieving trismus, failed. Mephate was prescribed in the usual dosage and relief was accomplished in eight to ten hours. No other treatment was given.

Rest Position

Determination (six cases) of the rest position of the mandible with and without Mephate premedication showed no measurable difference. This is somewhat surprising since it was theorized that some patients would have an altered rest position due to tension. This study is continuing and should be expanded.

(End First Installment)

One Johnson Avenue

Author's Note: The Mephate® used in this study was supplied by the A. H. Robins Company, Inc., Richmond, Virginia through the courtesy of William R. Bond, M.D., Director of Clinical Research. Mephate consists of mephenesin, 0.25 gram, and glutamic acid hydrochloride 0.30 gram per capsule.

Fundamentals of Nitrous Oxide Anesthesia

(*Continued from page* 445)

anesthesia an apparatus must be employed that will deliver an unvarying mixture of gases, and it must be possible to change this mixture quickly and by small increments. A continuous flow apparatus does not fulfill these requirements, even though it may have flowmeters of great accuracy.

Combination of Elements in Mixture—The large bag from which the patient breathes and into which he rebreathes, contains a constantly varying and unknown mixture of nitrous oxide, oxygen, nitrogen, carbon dioxide, and water vapor in quite unknown proportions. To change the composition of this miscellaneous mixture by adjusting flowmeters is slow and uncertain so that some supplement is apt to be employed.

Limited Rebreathing Aid in Smoothness—A machine with demand valves has sufficient delivery so that rebreathing can be completely eliminated, if desired. Limited rebreathing makes it easy to change the mixture quickly, and prevents dilation and contamination by unknown quantities of exhaled gases. Thus much smoother anesthesia is produced.

Hypoxia

The operator must be alert constantly to observe the signs of hypoxia (Table A).

TABLE A

Signs of Hypoxia	Mild	Severe
Respiration	Stimulated	Depressed with periodic irregularities
Pulse rate	Increased	Decreased, irregularities
Blood Pressure	Raised	Depressed
Muscular tone	Increased	Decreased
Color (variable)	Often cyanotic	Gray

Mild Hypoxia—While not in itself serious mild hypoxia is dangerous because if not corrected, a severe hypoxia may result. The addition of small amounts of oxygen will restore adequate oxygenation quickly.

Severe Hypoxia—This is an emergency and large volumes of oxygen must be given at once by the most effective means possible to avoid serious complications.

Close Observation of Patient Necessary—It is elementary that a free airway must be maintained at all times, for with a small margin of oxygen it must not be curtailed further by a respiratory obstruction. Similarly, if the patient needs abnormally large amounts of oxygen due to increased oxidation (febrile patients or thyrotoxic patients) or uses oxygen poorly due to anemia or circulatory failure, close observation of the patient is necessary to see that oxygen requirements are met.

Supplement May be Used—If it is necessary to increase the oxygen to the point where sufficient nitrous oxide cannot be given for effective anesthesia, a supplement should be added, though as skill improves such cases become increasingly rare.

Summary

The goal of the conscientious anesthetist is to provide anesthesia with the minimum number and quantities of the least toxic drugs possible. Nitrous oxide is of minimal toxicity and can be adapted to most surgical operations with success and safety by attention to certain technical principles. These principles are:

A. Avoiding dilution with nitrogen or other nonanesthetic gases.

B. Adequate premedication.

C. Accurate control of the anesthetic mixtures.

D. Detection and avoidance of hypoxia.

Adapted from *Current Researches in Anesthesia and Analgesia* **35**:141-144 (*March-April*) 1956.

Techniques of RUBBER BASE IMPRESSION MATERIAL: *Part Two*

ROBERT G. PINKERTON, D.D.S.,
Chicago

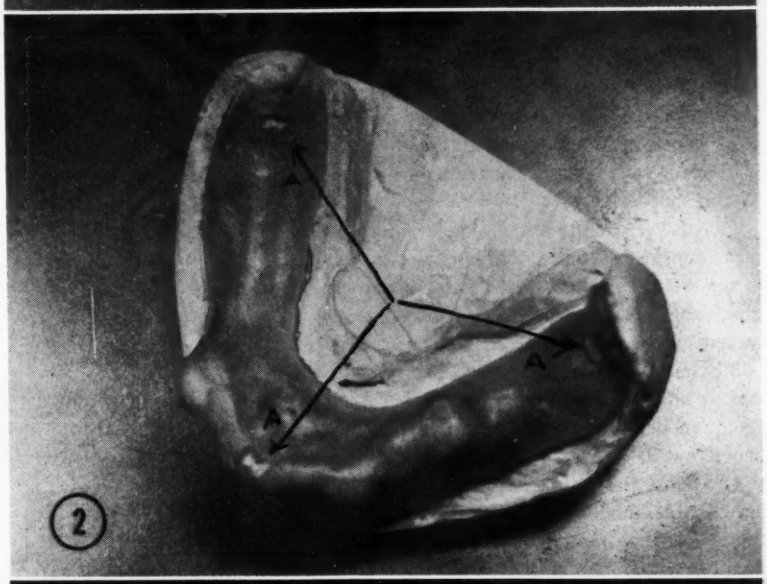
DIGEST

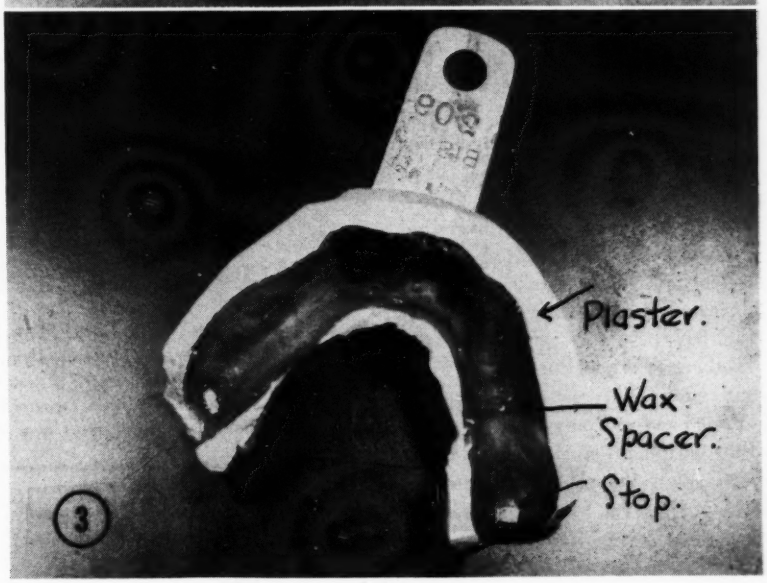
This is the second of two articles describing the techniques used with rubber base material. This article discusses specifically partial removable and edentulous impressions, presenting step-by-step directions for their completion with this material.

General Considerations in Technique

The technique of using rubber base material in partial removable dentures is similar to that employed in fixed bridgework and multiple inlay impressions. Assuming that all necessary operative measures such as inlays and crowns are set on the anchor teeth, good preliminary impressions are taken in alginate along with a bite.

Study Casts Retained — The preliminary impressions are poured in stone and the casts mounted on an





1. *Any severe undercuts in areas marked (A) are eliminated with wax.*
2. *Holes cut in wax spacer to provide stops in plaster or plastic tray.*
3. *Plastic impression taken over wax spacer in place on study model.*

adjustable articulator. When poured, the impressions and the casts are allowed to set in a humidor which will permit a second pouring to make working casts to be used in making wax spacers or trays. By so doing the original study casts may be kept intact for future use.

Provision for Uniformity of Material—If any teeth are to be extracted at the same sitting as the final rubber base impression is taken, these teeth are cut from the working study cast before the wax spacer is made. By so doing more uniformity of rubber material is provided in the final impression, assuring greater accuracy.

Two Methods of Making Final Impression Tray

(1) *The Plaster Tray* — The following steps are taken:

1. The working model is outlined in pencil to prevent overextension of tray borders.

2. Any severe undercuts such as may appear lingually and inferior to the retromolar area and the labial gingival area of the lower incisors are waxed out.

3. The wax spacer of baseplate wax is adapted over a slightly lubricated model and trimmed to the pencil outline.

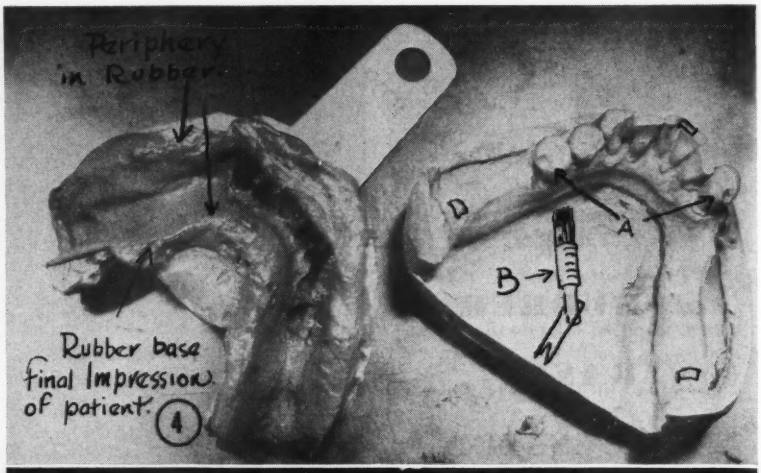
4. The desired thickness of wax may be obtained by adding to parts thinned out, or scraping overly thick areas.

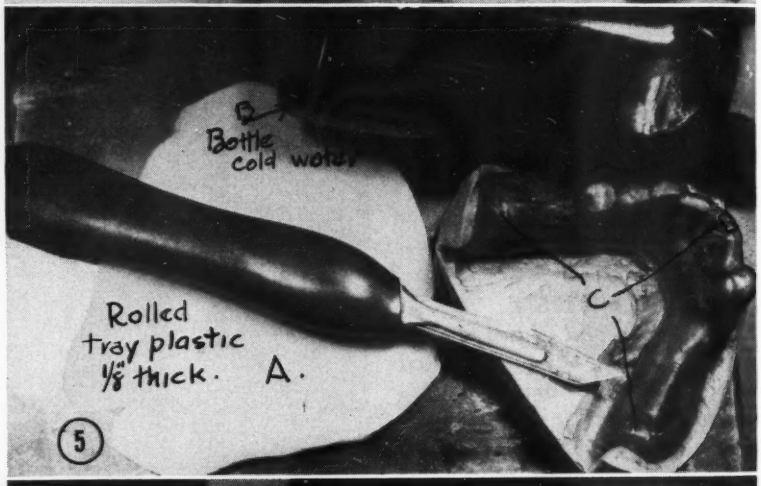
5. Stops are produced in the final tray by cutting out holes in the wax spacer (Fig. 2A). They may also be made by the addition of spots of extremely soft wax in selected areas of the final tray whether it be a plaster or plastic tray (Fig. 6B).

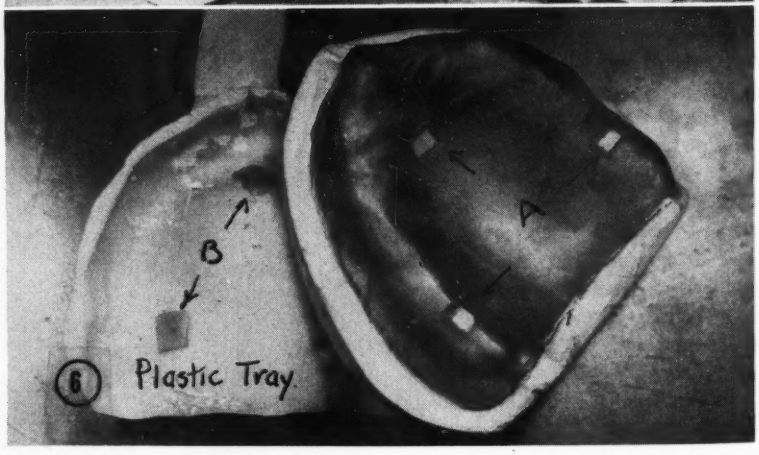
6. An ordinary slightly oversized aluminum tray is selected and a plaster impression is taken over the lubricated wax spacer and model (Fig. 3).

Rubber Forms Border in Final Impression: When set the wax spacer is peeled out and any overextensions of the peripheral borders are trimmed off to allow the rubber to form the border in the final impression (Fig. 4).

Rubber Adhesive Applied: With the plaster impression reasonably dry, the tissue side may be scored to assist in securing the rubber base. The tray is now ready to apply the rubber adhesive to the tissue side and peripheral borders of the plaster







4. *Small brush (B) to paint in rubber in areas apt to trap air.*
5. *A patty of tray plastic is rolled out on a slab using a bottle of cold water for a roller. A sharp lab knife is useful for trimming plastic borders.*
6. *Cut out spots in wax spacer provide stops in tray (A). Stops may also be provided by using extremely soft wax in desired areas of tray (B).*

tray. This may be done just prior to placing the rubber mix in the tray and taking the final impression (Fig. 4). Hand cream or lotion applied around the lips of the patient and the fingers of the operator will prevent sticking of material.

(2) *The Individualized Plastic Tray*—This is probably the most satisfactory tray for partial and edentulous impressions in rubber. The following steps are taken:

1. A mix of tray plastic is rolled out to about ⅛ inch thickness on a lubricated glass slab (Fig. 5A). A small bottle filled with cold water makes an efficient roller (Fig. 5B).

2. Stops may be made in the tray by cut-out spots in the wax spacer (Fig. 5C).

3. While the rolled plastic is still in a moldable condition it is adapted over the lubricated spacer and model and trimmed with a sharp knife to the pencil outline of the cast.

4. A tray handle may be formed from the trimmings and attached with a few drops of the liquid on the tray and handle.

5. When set, remove the tray from the model, peel out the wax spacer and trim to outline with a coarse carborundum lathe wheel. Setting of the tray may be accelerated by placing in warm water.

Rubber Mix Anchored: Numerous indentations cut into the tissue surface of the tray with a Number 37 inverted cone bur will aid in the anchorage of the rubber mix.

Final Impression Taken: As with the plaster tray, upon the arrival of the patient adhesive is painted in the tray, allowed to set, rubber mix is made, and the final impression taken.

Minimum Tissue Displacement: Because of the easy flow and soft texture of rubber, tissue displacement is brought to a minimum.

Tray Placed in Position: Adequate time is allowed to paint in vital areas with rubber before the loaded tray is put in place (Fig. 4A). This may be done with a small stiff prophylactic brush set into a handle with acrylic (Fig. 4B).

Edentulous Impressions

1. Impressions are taken in alginate or low fusing compound, having excellent muscle-trimmed borders.

2. Impressions are poured and casts outlined in pencil to assure no muscle impingement by the tray.

3. A wax spacer is adapted and trimmed to the outline.

4. Stops may be provided as shown in Figure 6A, or by placing small spots of extremely soft wax in desired areas of the tray (Fig. 6B).

5. The plastic tray material is prepared as in Fig. 5A and applied as in the case described above.

Anchorage Points Made—When set the tray is trimmed, anchorage points made with a Number 37 inverted cone bur on the tissue side. The remainder of the technique is the same as in the partial impression.

Time Allowed for Muscle Trimming—Adequate time is provided to allow for muscle trimming by the usual muscular exertions of the patient and the digital manipulation of the lips and buccal folds by the operator.

Material Cured in Mouth—Always allow adequate time for curing in mouth before withdrawal.

7200 *Exchange Avenue*

CLINICAL AND LABORATORY SUGGESTIONS

(*See pages* 462 *and* 463)

Form to be Used by Contributors
To: Clinical and Laboratory Suggestions Editor

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Evanston, Illinois

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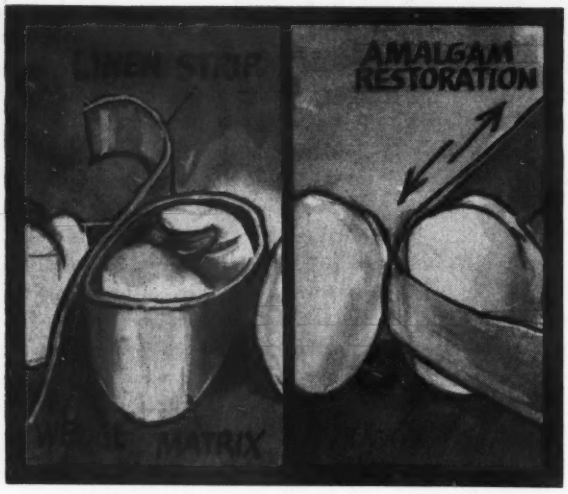
Subject: _____

Sketch:

Explanation of Procedure:

Suggestions submitted cannot be acknowledged or returned.
$10 will be paid on publication for each suggestion that is used.



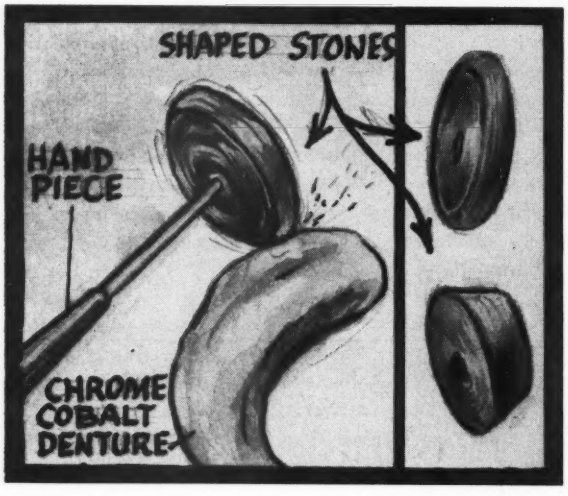
1

Clinical and Laboratory

Finishing Gingival Margins of Amalgam Restorations

Samuel E. Wardlaw, D.D.S., Anderson, South Carolina

1. Place a linen strip in the interproximal space before the matrix is in position. After the amalgam is inserted and the matrix is removed, the linen strip is used to finish the gingival margin without endangering the contact point.

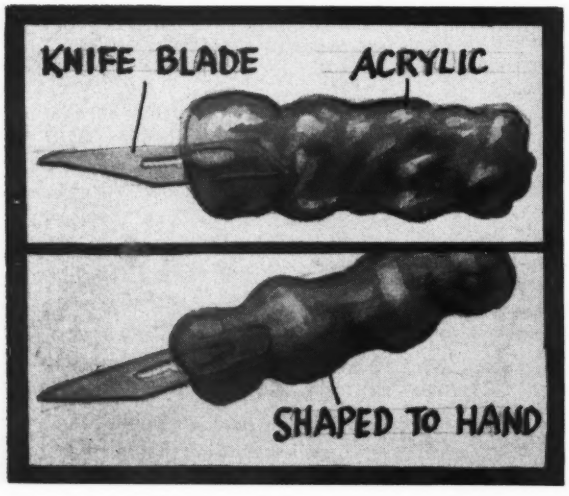


2

Shaping Stones

Dan Kruger, L.D.S., R.C.S., (Eng.), Johannesburg, South Africa

2. Run carborundum stones in the handpiece or laboratory lathe and shape them against a discarded chrome-cobalt denture.



3

A Laboratory Knife

Harold Crandall, D.D.S., Salina, Utah

3. When a Bard-Parker knife is dulled and no longer useful for surgery, it may be adapted for laboratory use by embedding the blade in a piece of quick-curing acrylic that is used to make impression trays.

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SUGGESTIONS . . .

Eliminating Bubbles in Rubber Impression Materials

Manuel I. Weisman, D.D.S., Augusta, Georgia

4. To avoid trapped air bubbles in an impression where rubber base material is used, place a small amount of the rubber impression material in a celluloid cement tube and squeeze into the preparation before seating the tray.

4

Handling Impressions

H. Sicurnik, D.D.S., Montreal

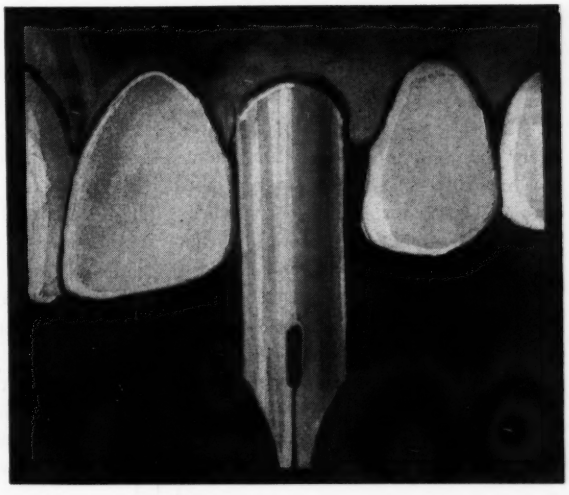
5. Hydrocolloid or alginate impressions enclosed in Saran Wrap can be stored overnight without danger of damage.

5

A Gingival Impression Tray

Stuart R. Groves, D.D.S., Seattle

6. Pen points of assorted sizes are convenient for taking impressions of preparations in the gingival third of teeth.



6

technique involved; and jot down the advantages of the technique. This shouldn't take ten minutes of your time. Turn to page 461 for a convenient form to use.

Send your ideas to Clinical and Laboratory Suggestions Editor, DENTAL DIGEST, 708 Church Street, Evanston, Illinois.

MEDICINE and the Biologic Sciences

Bronchiectasis

In most instances surgery for bronchiectasis is curative. After convalescence all patients are improved. However, only one-fith are symptom free.

Residual morning cough usually persists but little sputum and no hemoptysis are detected after the third postoperative week. The patients gain weight, tire less quickly, and can work.

Disease that is moderate, unilateral and limited to the basilar segments of the left lower lobe and lingula may be completely eradicated by surgery. Patients with bilateral bronchiectasis may improve sufficiently after unilateral surgery to justify an indefinite postponement of the second operation, even though bronchograms do not show healing of the remaining bronchiectasis.

After bilateral resection convalescence may extend for a year. Dyspnea on exertion persists for long periods of time. Heavy pleural thickening restricts movement of the diaphragm.

Tracheostomy should be done before operation if the quantity of sputum cannot be reduced by: (1) antibiotics, (2) bronchial dilators, (3) 5 per cent carbon dioxide and 95 per cent oxygen inhalation, and (4) postural drainage. Bronchoscopic aspiration is also valuable preoperatively.

Anoxia, pulmonary edema, and cardiac failure can be lessened by administering the least possible amount of fluids postoperatively. Shock should be controlled and blood loss replaced during surgery.

The selection of patients for surgery cannot be based on the extent of bronchiectatic involvement of the lungs. Operation is necessary when a single segment is involved if the disease incites gross recurring pneumonitis.

The disease rarely heals after conservative therapy. Surgery is deferred when symptoms subside with nonoperative management, the diagnosis is not confirmed by radiologic study, or the patient is a poor surgical risk.

Garlick, William L.: Bronchiectasis: Observations Upon Seven Hundred and Five Cases, Am. J. Surg. **21**:246-254 (*February*) 1955.

Cerebral Palsy

Persons with cerebral palsy usually may enter into one of three types of life. A minority of children are able to enter the field of academic education and employment. For these, emphasis should be laid on the skills of reading, communication, and abstract thinking. Intense training in coordination activities is also of importance.

The second, larger group profits most from an occupational education not requiring abstract thinking. These persons benefit from training in following directions, social independence, and gross activities.

For the children unable to contribute to society because of severe mental and physical trauma, the objective is to make good institutional citizens or to lessen the burden of care in the home. Self-care education with training in dressing, toilet, ambulation, and behavior control is important.

If brain damage has left intact only the vegetative centers, no form of treatment is required. Only nursing care with prevention of contractures to maintain good hygiene is needed.

The training program begins with the resolution of the parent's emotional problems. Counseling by the physician, social service worker, minister, teacher or therapist is often needed. Intensive psychiatric treatment may be required.

The social phase of treatment is the most important to the child because success as an adult depends on a pleasing personality. Training in emotional control and group living should proceed concurrently with opportunities for personality development and the assumption of responsibility.

All persons in contact with the child should encourage the faculty of speech. Natural mother-and-child play forms the basis for a good functional program with imitations of lip and tongue movement, vocalization, story telling, and picture identification.

A rigid program of definitive speech therapy is not started before language has a natural free flow. All efforts are then directed toward making speech intelligible, using a combination of exercise of the muscles of speech and respiration, articulation training and amplification if indicated.

Training should be accomplished in a natural manner and the child should not be made to feel that exercises are the main purpose of living. The developmental activities by which normal children learn to stand, walk and climb can be adapted to the child with cerebral palsy.

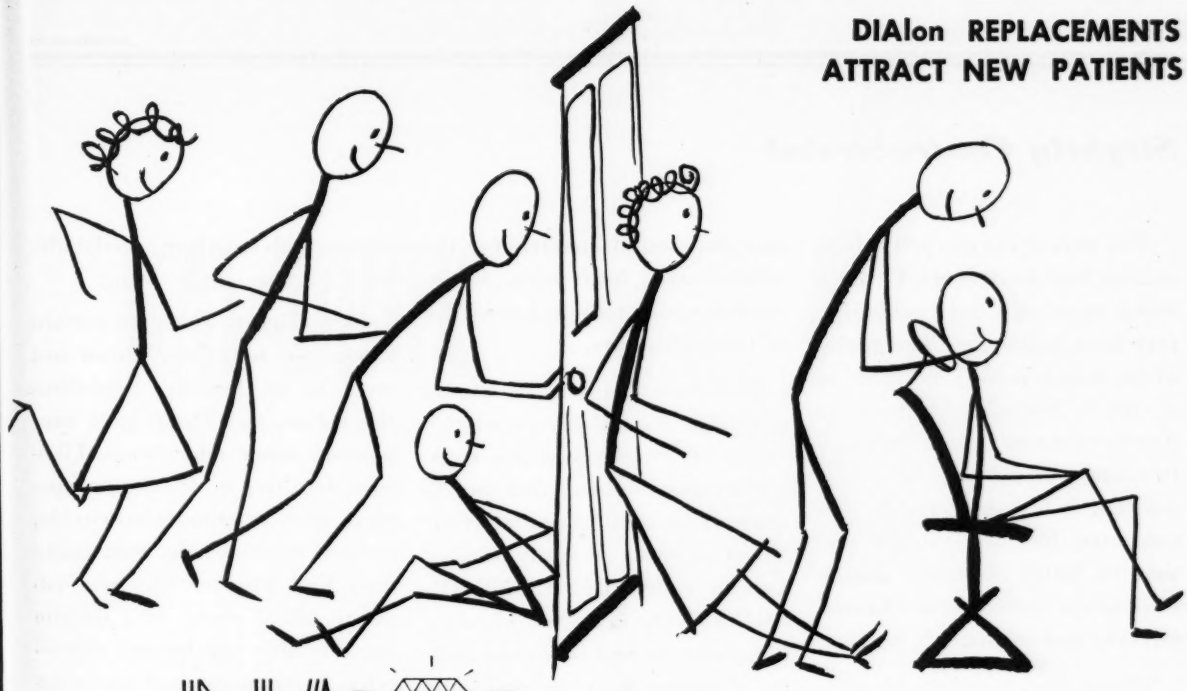
Gillett, Harriet E.: Preschool Training for Cerebral Palsy, Arch. Phys. Med. **36**:31-34 (*January*) 1955.

Smog

The problem of smog formation is quite serious in the Los Angeles

(*Continued on page* 468)

DIAlon REPLACEMENTS ATTRACT NEW PATIENTS



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Slightly Controversial

The principles of cavity preparation laid down by G. V. Black many years ago have seldom if ever been under fire. The genius of the man is readily apparent by a visit to his office, restored at Northwestern Dental School. Dentistry was not his only passion. It is inconceivable how one man had the vitality and time to fulfill his many accomplishments, including mechanics, physics, and music.

Without detracting from his place in dental history, it must be recognized that his teaching was based NOT on many materials existent today. Similarly, the knowledge of the tooth today differs materially from the concept then.

Hopewell-Smith "proved" that enamel was totally inorganic and devoid of life, (we heard him lecture many times) as late as 1928. Today additional research, better methods, and changing interpretations have changed our concepts. Enamel IS alive.* It contains organic microlamellae. As long as the pulp is alive, the enamel lives and receives nourishment. Thus our efforts to protect the pulp from untimely death are of paramount importance.

John Fisk once said that scientists are wont to "settle all disputed points by referring to the wisdom of the ancients." This we must not do.

We believe that the indiscriminate cutting away of sound dentine and sound enamel, for the sake of cavity form per se, is outmoded under today's knowledge of tooth structure.

We believe that with our present knowledge of dental therapy, all cavities of any extent should have therapeutic bases consistent with the etiology of the initial caries involved.

Let us never be guilty of what Carlyle called DEFICIENT IMAGINATION, i.e.—'an absolute incapacity to realize an unfamiliar situation, to grasp conditions which are not immediately visable."

If operative dentistry is to take its rightful place among the specialties of our profession, its atmosphere must be inquiring, and its mood experimental. Deviations from acceptable teachings must not be frowned upon simply because they are deviations.

For many years we have asked the question DOES A NON-VITAL TOOTH DECAY? We have asked some of the best men in our profession. The answers? About 1/3 yes, 1/3 no, and 1/3 don't know. It seems to us that this is a pretty elemental subject upon which we seem to know nothing. Is there an expert who knows the answer?

But we brought up the question for a different reason. Among other things, we believe there are various forms of caries, not all having the same origin. If there are, then to fill all types with one filling material with the same treatment is wrong.

In medicine, there are certain things that today are known and seem to be specific, penicillin, the sulfas, etc. These have supplanted many older drugs. Likewise dentistry is developing specifics such as calcium-hydroxide, sodium fluoride, etc. Still many men find use for creosote, eugenol, oil of clove, etc., despite our scientific articles and discoveries. It seems we read and criticise BUT are ofttimes unable to understand the spirit behind the print.

Perhaps it makes common sense to continue the use of something that has given us good service, and experience. But Einstein said that "Common sense is a deposit of prejudices laid down in the mind—every new idea must combat this accretion of self-evident concepts."

OUR ERROR: Last month, we stated "use ½ cc of powder to 8 drops of monomer." Since then, we find too many sizes of drops. Better idea is to place 8 drops of monomer in a dappen dish. Pour on top all the PEARLon powder the monomer will absorb and a trifle more. Stir until doughy. The purpose is to get a 5 to 1 mix of powder and liquid. Any better ideas will be appreciated.

American Consolidated Manufacturing Co.
835 N. 19th St.
Philadelphia 30, Pa.

*Losee, Fred L., Microlamellae in Enamel Demonstrated by the use of Ethylenediamine. Dental Radiography and Photography. No. 2, 1956.

KAL-DROX

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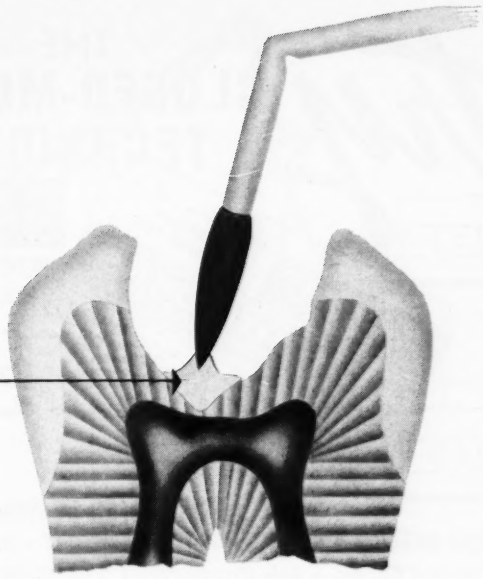

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(*Continued from page* 464)

basin. In 1953, the Air Pollution Foundation was incorporated. This nonprofit organization supports scientific research and cooperates with the public and other agencies in learning the facts about smog. It is in no sense an enforcement agency but makes the results of its studies available to such agencies. It does not duplicate services already rendered by other agencies, governmental or private.

It is now possible to differentiate between smog and air pollution. Smog irritates the eyes and damages plants. These effects are absent on some days when the amount of atmospheric pollution is comparable as judged by reduction in visibility and air movement is at a standstill. The reason is thought to be a difference in concentration of certain pollutants. The nature of this difference is unknown.

The materials out of which smog evolves are believed to arise chiefly from: (1) motor vehicles, (2) industrial wastes and (3) the burning of rubbish, in that order. Incomplete combustion is an important factor in all three.

The most widely accepted theory at present is that smog results from photochemical reactions involving hydrocarbons, oxides of nitrogens, and sunshine. It has been estimated that not counting motor vehicles about 20 per cent of the pollutants poured daily into the air comes from domestic incinerators and the burning of various fuels for heating private dwellings. The greatest problems arise in those areas where, as in Los Angeles, a natural atmospheric trap exists. Cool air moving in gently from the ocean cannot pass the mountains and cannot rise through the superimposed blanket of warmer air. Under such conditions vast amounts of pollutants that would ordinarily be widely dispersed accumulate until toxic concentrations are reached.

Smog affects health and property and also deters the industrial development of an area where it prevails. Open fires for burning rubbish should be prohibited, if not at all times at least at such times as atmospheric conditions are especially favorable to smog formation. Provisions for the systematic collections and sanitary disposal of all combustible rubbish will go far toward ameliorating the problem.

Editorial. The Battle Against Smog, JAMA **158**:403 (*June* 4) 1955.

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growing worse since larger doses of insulin are needed in succeeding years. The degree of hypoinsulinism can be evaluated by comparison of insulin dosages and growth with similar values for a group of diabetic children.

The age of onset of the disease does not materially influence requirements of insulin. The need for insulin generally increases rapidly after initial regulation and metabolic restoration. After the sudden initial fall, the requirement increases at a rapid rate for another short period. Then the insulin requirement is fairly constant if the caloric intake is fixed.

During the early period of therapy, the child's weight increases rapidly but height remains almost stationary. Within a short period, the rate of growth in height accelerates and concurrently the insulin requirement increases, eventually attaining almost a constant ratio with body weight.

The growth patterns of boys and girls up to 10 years of age are similar. The smooth increase of insulin dosage reflects the uniform growth in the midchildhood period. Boys need more insulin than girls because of greater body mass. Requirements increase rapidly after 10 years of age for girls and 12 years for boys with the prepubescent growth spurt.

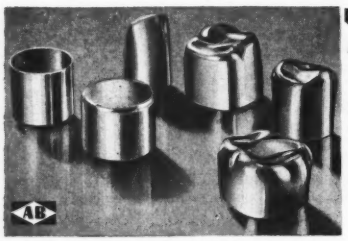
Good control of the disease is difficult to obtain and maintain during the early months of treatment because the insulin and nutritional requirements change concurrently, with the pronounced alterations in weight and height. The rate of change depends on whether onset of the disease is in mid-childhood or concomitant with prepubescent growth. After a period of changing body composition, a definite pattern is established. And as adulthood is reached, therapy and diet must be adjusted.

Kelly, Helen G.; Rao, P. Tirumala; and Jackson, Robert L.: Insulin Requirements of Children with Diabetes Mellitus Maintained in Good Control, Am. J. Dis. Child. **89**:31-41 (*January*) 1955.

Drug Allergies

The allergic manifestations to drugs may be classified as (1) reactions localized in special organs or tissues such as urticaria, hives, diarrhea, asthma, hay fever, and agranulocytosis, (2) generalized severe and acute symptoms as with anaphylactic shock, and (3) generalized slight and chronic reactions such as fever. Allergic reactions do not appear after the first administration of a drug but after sensitization has occurred.

Any chemical having carboxyl, amino, or hydroxyl group may combine with various amino acids in metabolism and form a complex capable of cellular sensitization. Included in this classification are many antibiotics, the sulfonamides, organic arsenicals, and hormones. Allergic reactions also may result from iodides, barbitals, aspirin, salicylates, local anesthetics, analgesics, and



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antithyroid agents. Such agents as epinephrine, caffeine, cascara sagrada, and general anesthetic agents are not known to cause sensitization.

Reactions to antibiotics are frequent, whether the drugs are administered parenterally or locally. Routine administration for sore throat or slight infection can produce sensitization. Serious consequences may result when the antibiotic is later used for a severe infection.

Penicillin reactions of the skin are extremely common. Caution should be exercised in administering drugs that block penicillin excretion since the speed of disappearance of a reaction depends on the rate at which penicillin is removed from the body. Oral administration of the antibiotic reduces the tendency to sensitization or allergic reaction.

Streptomycin may cause direct allergic symptoms which usually involve the skin such as rashes, maculopapular eruptions and exfoliative dermatitis. There may also be respiratory and neuotropic effects as well as joint swelling and pain. Dihydrostreptomycin is freer from neurotoxicity and allergic response than streptomycin.

Aureomycin may cause considerable gastrointestinal disturbance such as nausea, vomiting, and diarrhea. In many instances this is due to allergic sensitivity of the intestinal mucosa.

When symptoms suggest allergic reactions, drug administration is stopped. With anaphylactic shock, 1 cubic centimeter of a 1:10,000 concentration of epinephrine hydrocloride is administered intravenously. In general, management of drug allergy is symptomatic. Local irritation is reduced as much as possible and elimination of the allergen is hastened. Antihistamines are of little value after allergic symptoms appear.

Leake, Chauncey D.: Drug Allergies, Postgrad. Med. **17**:132-139 (February) 1955.

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Contra-Angles

Olfactory Nostalgia

One day recently I stepped into a building and there had a sensory experience that flashed me back in memory 45 years. It was a smell that I remembered as a boy. The smell from a bakery that was near a bridge, over a river. This was not the ordinary pleasant smell of baking bread. It was that plus something more, a richness of association. Only twice in a lifetime do I remember the same olfactory impact.

Nostalgia means "homecoming pain." The pain that one has when something reminds him of other days; days he knows can never return; days of wishful homecoming.

Each person has his own treasuries of nostalgia. To each they are unique, as individual, as precious as any other experience. Any one of the senses may have been the source through which the stimulus entered and was then held some place in the human brain. Held in an area that no neurophysiologist has ever charted. Held there to reappear some day with emotional overtones.

A melody may recall a lovely moment and an association with another human being. The stars and moon may do the same. The touch of silk and satin or a soft breeze upon the face may trigger memory. The epicure has his taste buds to give him food recall. The sense that is most highly developed varies among people.

I have been told that the Chicagoan born near the stockyards has a nostalgia for that smell. A hot foundry cooling itself at the end of a summer day, a tannery, are other smells of a city that rekindle pleasant memories for some urban people. That may be hard to understand. But are not the tastes and tempers of others often difficult for us to comprehend?

The country squire, "content to breathe his native air," is delightfully alive to the smells of husbandry, of growing things, of the changing seasons upon the land.

The infant newly bathed and clothed, the robust child with hair aglow, the vital-lighted eyes of young love are sensory experiences that none of us forgets because they are laden with nostalgia.

Before the days of instruments of precision and elaborate tests the diagnostician was required to depend upon his senses. He *looked* at people, *listened* to people, *touched* them—yes, and even *smelled* them.

I recall a dear physician-friend of mine who was the son of an astute country doctor. The younger man had a patient who was critically ill of a gastrointestinal disease. The physician was running a series of laboratory tests with the hope that he might make a definitive diagnosis.

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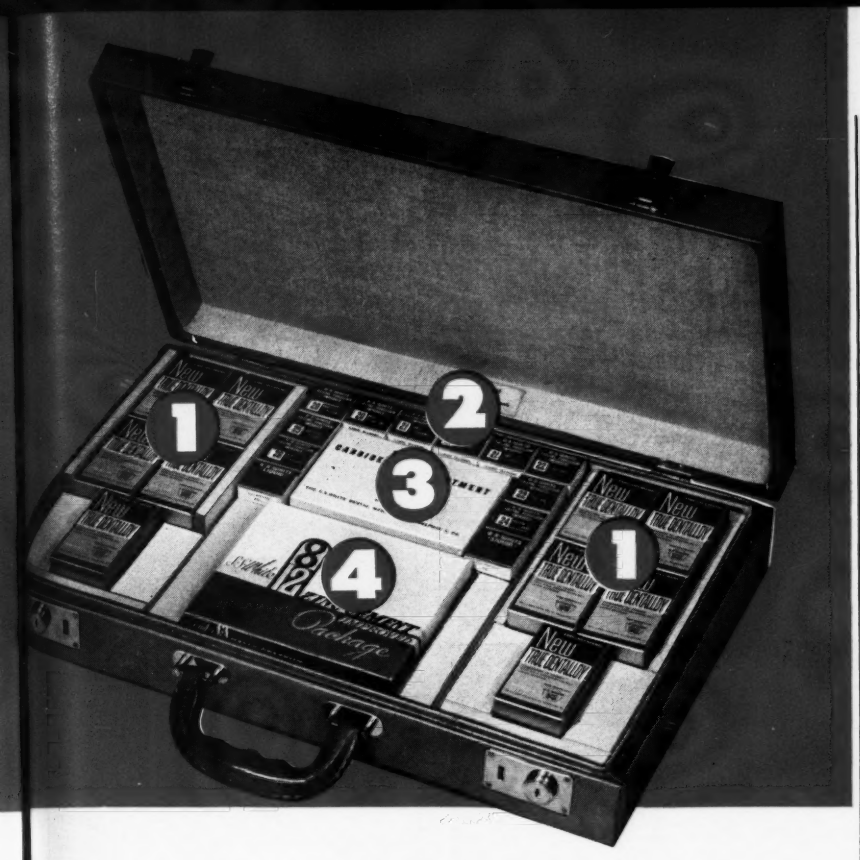

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The cement that embodies—high strength—great holding power and low film thickness. The 8/12 Package contains 8 ounces Powder No.12 (Tooth yellow) 120 c.c. liquid and 1 each large size trial powder No. 12 and liquid.

The older physician came into the room of the sick man, took one *smell* and beckoned to the son to step outside the room.

"David," the father said, "your patient has typhoid fever."

"Typhoid! What makes you think so?"

"He has the typhoid *smell*."

The younger physician, although incredulous, knew that there is a form of knowledge, and of diagnostic skill, that lies outside x-rays and laboratory tests. It is too bad for mankind that this kind of knowledge is being lost to the medical world. It is the *sense* that comes through the senses.

Things that we can *see* may be captured by the camera. Sound waves may be recorded. Touch may be measured. Taste and smell are ill defined, except by exacting laboratory testing.

The men in the gray flannel suits on Madison Avenue, New York City who write the advertising copy have pulled all the "stops" on sense-appeal. Beautiful and lush models appeal to our sight and emotions. Pretty pictures tell a story. Commercial plugs are disguised in music. But these advertising men have yet to find the key to smell-appeal. Sex they have discovered, but not the power of olfaction. They must, therefore, fall back on their catchall expression: "It's *wonderful*." Everything is "wonderful" to the copywriter!

The perfume people and their advertising agencies have done a slick thing in trying to associate the smell of perfume with the exotic and the sensual. A perfumery selling under the label "Mabel's Mist" would go broke before they sold the first bottle. The same stuff selling as "Lust of Angels" would be a record smasher at the sales counter.

The soap and deodorant manufacturers have done a clever job to make us conscious that we may offend if we do not lather and annoint our bodies with some routine and regularity. It is the fear appeal that they use. These people do not tell us positively what their product can do, because the sense of smell cannot be described—except in the most general kind of terms. They retire to their trusted cliché, "wonderful," because it is used to describe everything that is devoid of specific meaning. Only occasionally do they use the synonyms: Surprising, astonishing, extraordinary.

The first advertiser used symbols and grunts to sell his product. As writing and speech evolved he refined his pictures and his sounds. He was able to convey more information and more emotion. Now he has media to give out with both in remarkable degree. Unfortunately many advertisers who appeal to people add too much emotion and not enough information.

Through the medium of television we see and hear people. A large part of this seeing and hearing we could do without. I have not looked into a crystal ball for awhile or read the latest magazine that pictures the future of science. When I do I hope not to learn that a device is being

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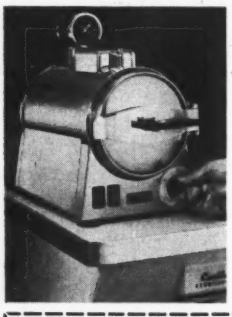

When you merely set *one dial*, your sterilizing is so simple you can do it blindfolded. Sterilizing with a SpeedClave is that easy!

No other office autoclave offers you automatic heating, timing, and venting. Three features that free your nurse for other duties. To sterilize, she merely loads the SpeedClave, sets it . . . then forgets it.

From a cold start, your sterilizing is done in half the time of other office autoclaves, and the SpeedClave even turns itself off.

Simple? Nothing could be simpler—or *safer*. Autoclaving is the safe way to sterilize. And SpeedClaving is the simplest and quickest.

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"researched" (another gem from Madison Avenue) that will give us the power to sit at home and allow us to touch or smell people on tel-olftactile-vision.

I admit that there are a few that I would like to touch with mayhem—and some with another emotion uppermost. But smell, no thanks. Better to let olfactory nostalgia have its pleasant place. —E. J. R.

Prevention of Recurrence in Cancer

The incidence of female breast and genital cancer is far lower in allergic and hyperthyroid conditions (Group A) than in hypothyroid women or women after a partial thyroidectomy because of goitre (Group B).

Women belonging to Group A have on average a much higher histamine content in their cells than women in Group B, and the lipid content of the blood is much lower in Group A than in Group B.

The more thyroid hormone circulating in the blood the higher the histamine content in the cells, the lower the level of the lipids the less tendency to cancer formation.

Intracellular protein-bound histamine is regarded as a defense hormone against cancer formation under the control of the thyroid hormone.

Thyroid hormone, given in massive dosage in cases of inoperable cancer of the breast and genitals, slowed down cancer growth.

Thyroid hormone in daily dosage ranging between 1 and 5 grains (65 and 320 milligrams) was given over six years as a prophylactic against cancer recurrence after radical operations because of breast or genital cancer, and after deep x-ray treatment. The good results which were obtained should encourage further trial of this method on a large scale.

From *British Medical Journal* No. **4901**:1383 (Dec. 11) 1954.